

7.5 Maximum Power Spectral Density – 802.11a/n/ac §15.407(a.1)(2.5)

Test Overview and Limit

The spectrum analyzer was connected to the antenna terminal while the EUT was operating at its maximum duty cycle, at its maximum power control level, as defined in KDB 789033 D02 v01, and at the appropriate frequencies. Method SA-1, as defined in KDB 789033 D02 v01, was used to measure the power spectral density.

In the 5.15 – 5.25GHz, 5.25 – 5.35GHz, 5.47 – 5.725GHz bands, the maximum permissible power spectral density is 11dBm/MHz.

In the 5.725 – 5.850GHz band, the maximum permissible power spectral density is 30dBm/500kHz.

Test Procedure Used

KDB 789033 D02 v01 – Section F
KDB 662911 v02r01 – Section E)2) Measure-and-Sum Technique

Test Settings

1. Analyzer was set to the center frequency of the UNII channel under investigation
2. Span was set to encompass the entire emission bandwidth of the signal
3. RBW = 1MHz
4. VBW = 3MHz
5. Number of sweep points $\geq 2 \times (\text{span}/\text{RBW})$
6. Sweep time = auto
7. Detector = power averaging (RMS)
8. Trigger was set to free run for all modes
9. Trace was averaged over 100 sweeps
10. The peak search function of the spectrum analyzer was used to find the peak of the spectrum.

Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.

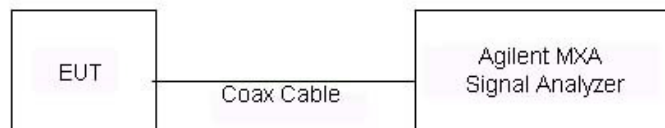


Figure 7-4. Test Instrument & Measurement Setup

Test Notes

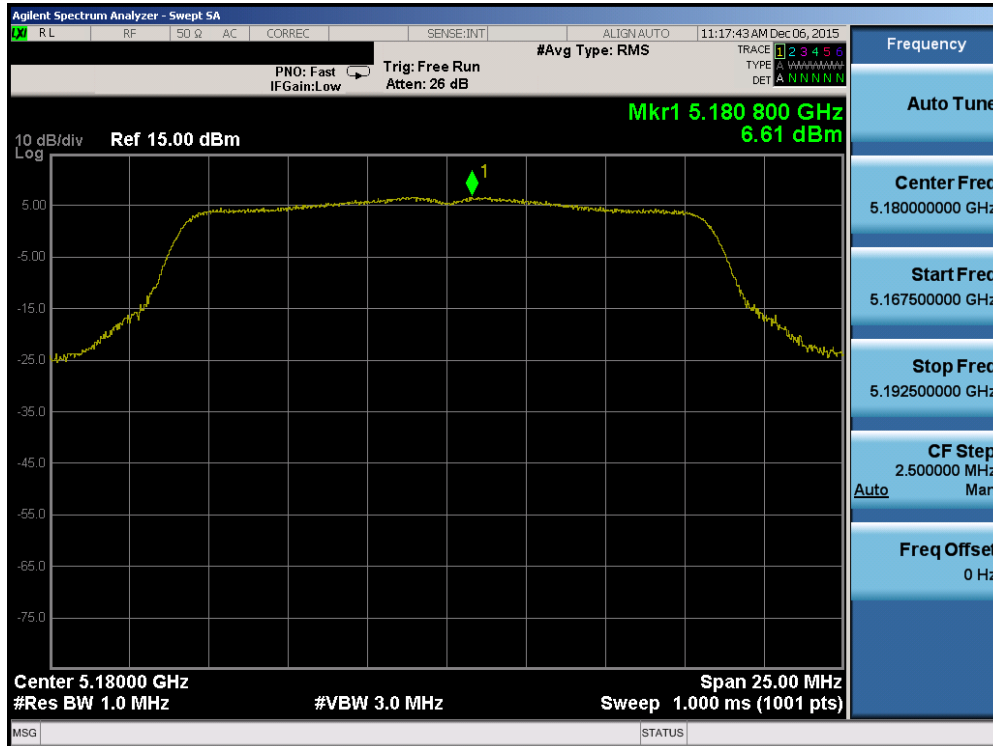
None

FCC ID: A3LSMG9350		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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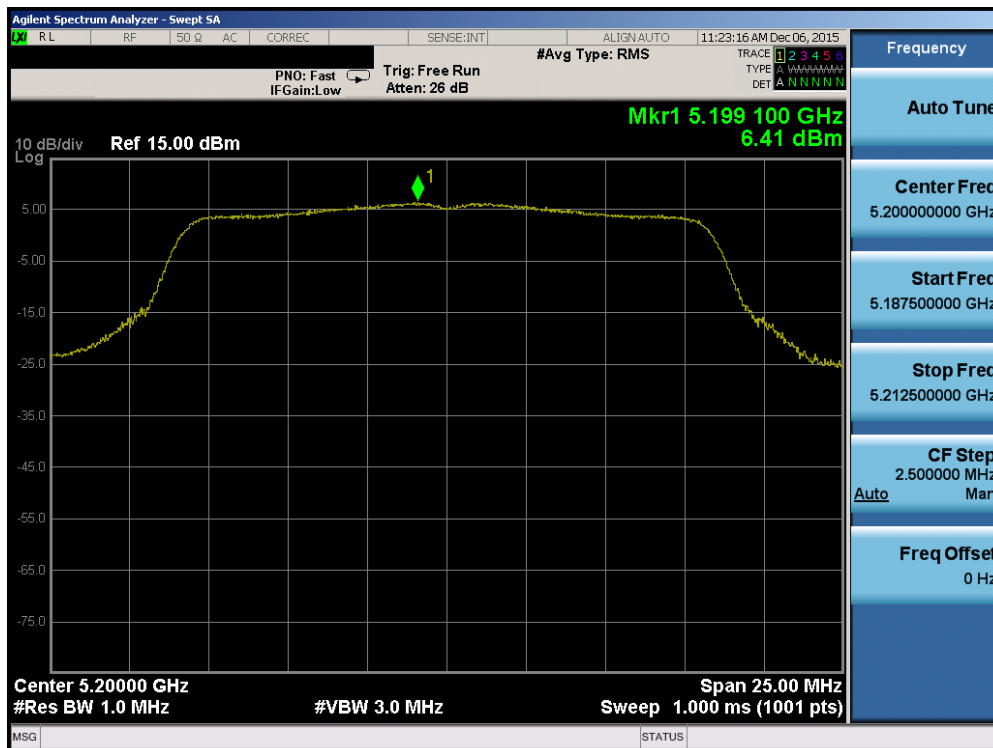
Antenna-1 Power Spectral Density Measurements

	Frequency [MHz]	Channel No.	802.11 Mode	Data Rate [Mbps]	Measured Power Density [dBm]	Max Permissible Power Density [dBm/MHz]	Margin [dB]	Pass / Fail
Band 1	5180	36	a	6	6.61	11.0	-4.39	Pass
	5200	40	a	6	6.41	11.0	-4.59	Pass
	5240	48	a	6	6.34	11.0	-4.66	Pass
	5180	36	n (20MHz)	6.5/7.2 (MCS0)	6.05	11.0	-4.95	Pass
	5200	40	n (20MHz)	6.5/7.2 (MCS0)	6.06	11.0	-4.95	Pass
	5240	48	n (20MHz)	6.5/7.2 (MCS0)	6.09	11.0	-4.91	Pass
	5190	38	n (40MHz)	13.5/15 (MCS0)	3.16	11.0	-7.84	Pass
	5230	46	n (40MHz)	13.5/15 (MCS0)	3.51	11.0	-7.49	Pass
	5210	42	ac (80MHz)	29.3/32.5 (MCS0)	-1.80	11.0	-12.80	Pass
Band 2A	5260	52	a	6	6.71	11.0	-4.29	Pass
	5280	56	a	6	6.90	11.0	-4.10	Pass
	5320	64	a	6	6.64	11.0	-4.37	Pass
	5260	52	n (20MHz)	6.5/7.2 (MCS0)	6.22	11.0	-4.78	Pass
	5280	56	n (20MHz)	6.5/7.2 (MCS0)	6.65	11.0	-4.36	Pass
	5320	64	n (20MHz)	6.5/7.2 (MCS0)	6.30	11.0	-4.70	Pass
	5270	54	n (40MHz)	13.5/15 (MCS0)	3.69	11.0	-7.31	Pass
	5310	62	n (40MHz)	13.5/15 (MCS0)	3.60	11.0	-7.40	Pass
	5290	58	ac (80MHz)	29.3/32.5 (MCS0)	-1.28	11.0	-12.28	Pass
Band 2C	5500	100	a	6	7.32	11.0	-3.68	Pass
	5600	120	a	6	7.13	11.0	-3.87	Pass
	5720	144	a	6	6.53	11.0	-4.47	Pass
	5500	100	n (20MHz)	6.5/7.2 (MCS0)	7.03	11.0	-3.98	Pass
	5600	120	n (20MHz)	6.5/7.2 (MCS0)	6.98	11.0	-4.02	Pass
	5720	144	n (20MHz)	6.5/7.2 (MCS0)	6.45	11.0	-4.55	Pass
	5510	102	n (40MHz)	13.5/15 (MCS0)	4.14	11.0	-6.86	Pass
	5590	118	n (40MHz)	13.5/15 (MCS0)	4.43	11.0	-6.57	Pass
	5710	142	n (40MHz)	13.5/15 (MCS0)	3.71	11.0	-7.29	Pass
	5530	106	ac (80MHz)	29.3/32.5 (MCS0)	-1.45	11.0	-12.45	Pass
	5610	122	ac (80MHz)	29.3/32.5 (MCS0)	-1.51	11.0	-12.51	Pass
	5690	138	ac (80MHz)	29.3/32.5 (MCS0)	-4.52	11.0	-15.52	Pass

Table 7-17. Bands 1, 2A, 2C Conducted Power Spectral Density Measurements

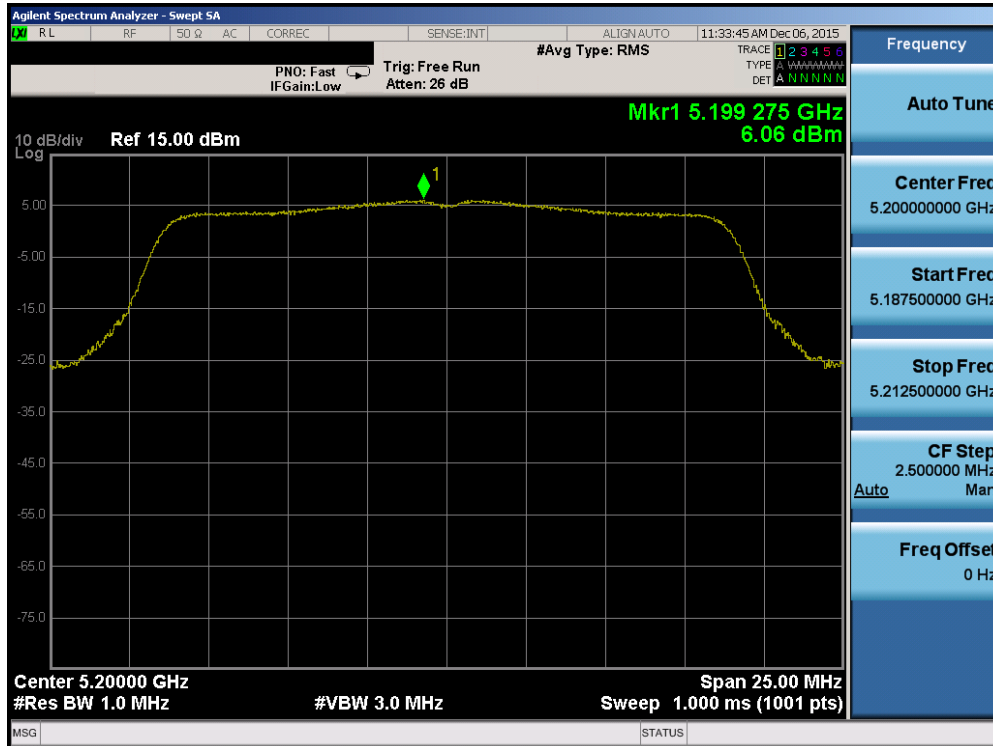


Plot 7-79. Power Spectral Density Plot (802.11a (UNII Band 1) – Ch. 36)

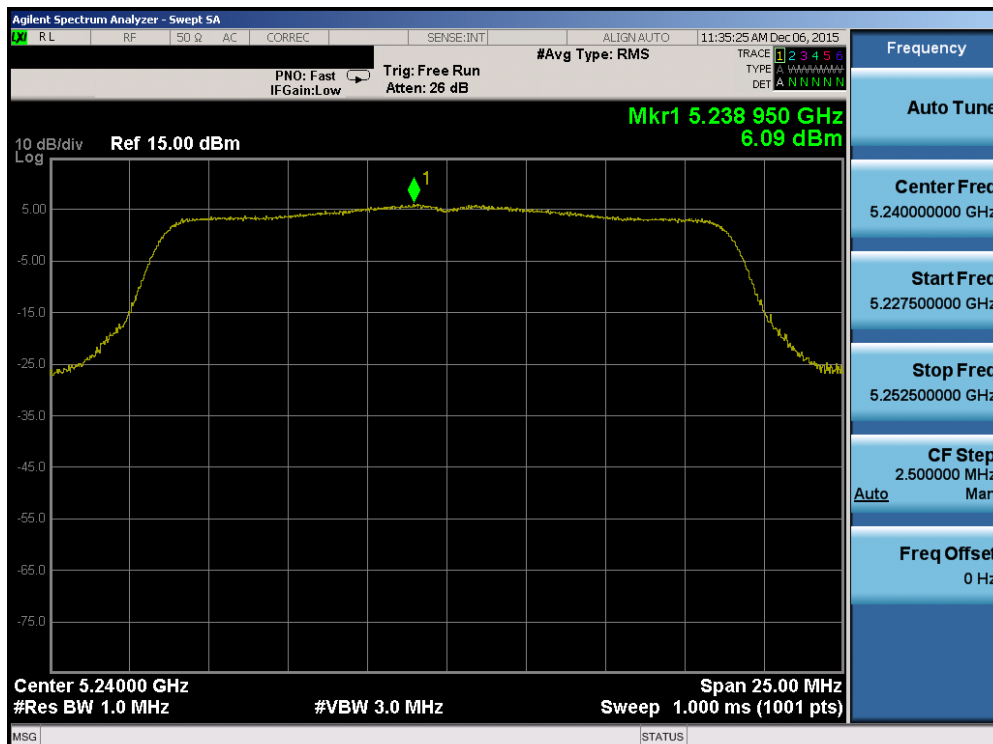


Plot 7-80. Power Spectral Density Plot (802.11a (UNII Band 1) – Ch. 40)

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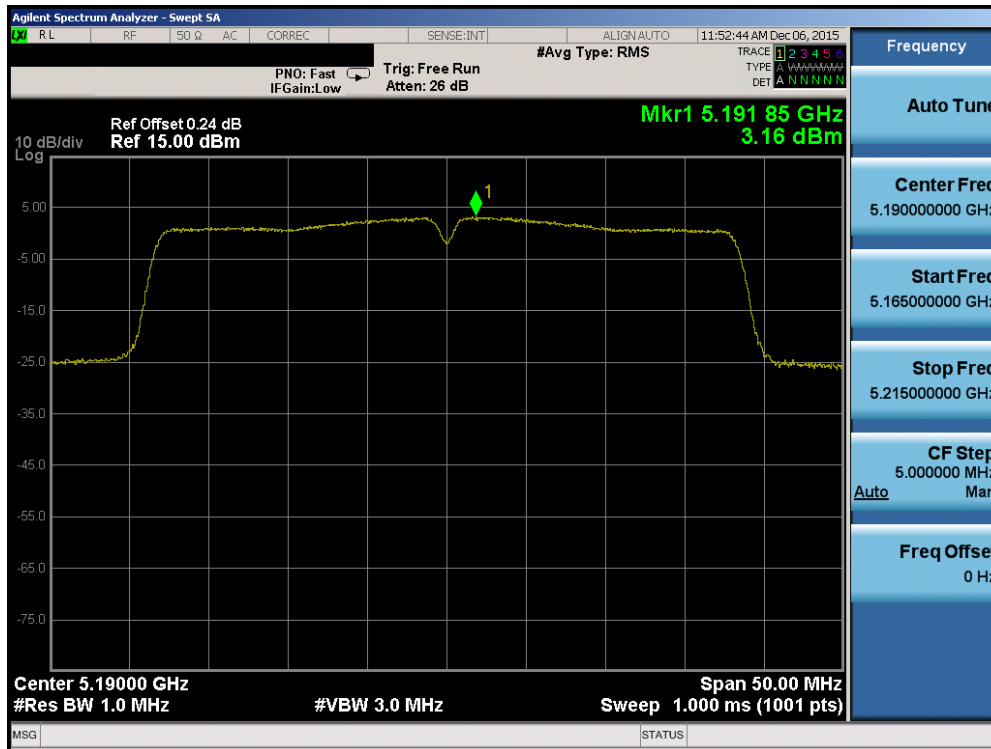


Plot 7-83. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 1) – Ch. 40)

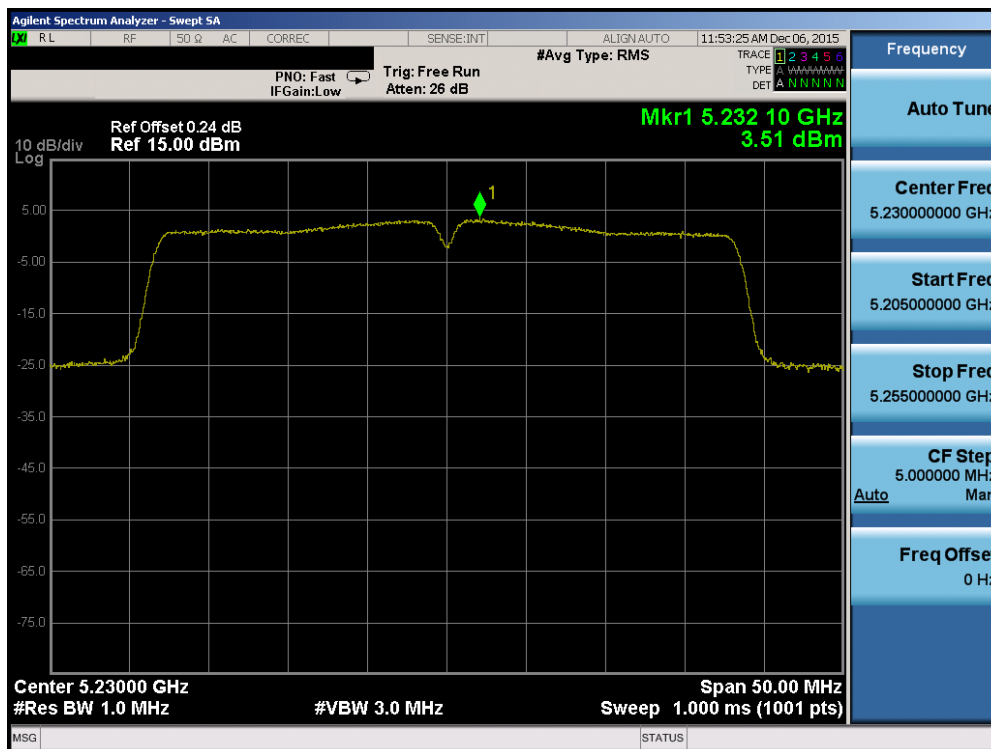


Plot 7-84. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 1) – Ch. 48)

FCC ID: A3LSMG9350	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 69 of 258

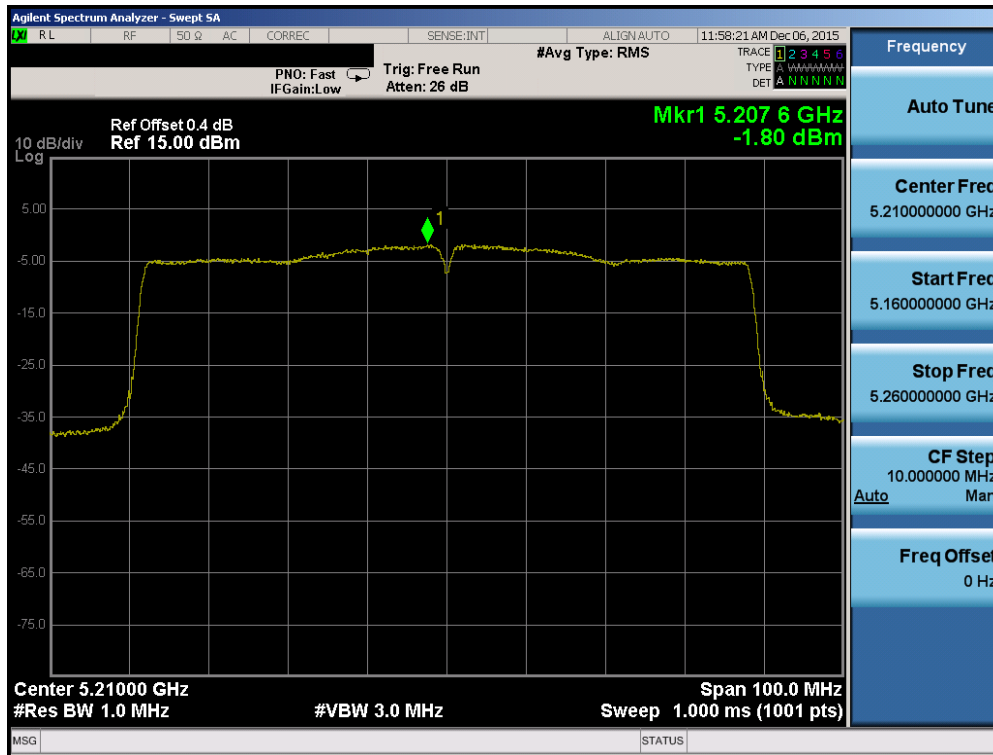


Plot 7-85. Power Spectral Density Plot (40MHz BW 802.11n (UNII Band 1) – Ch. 38)

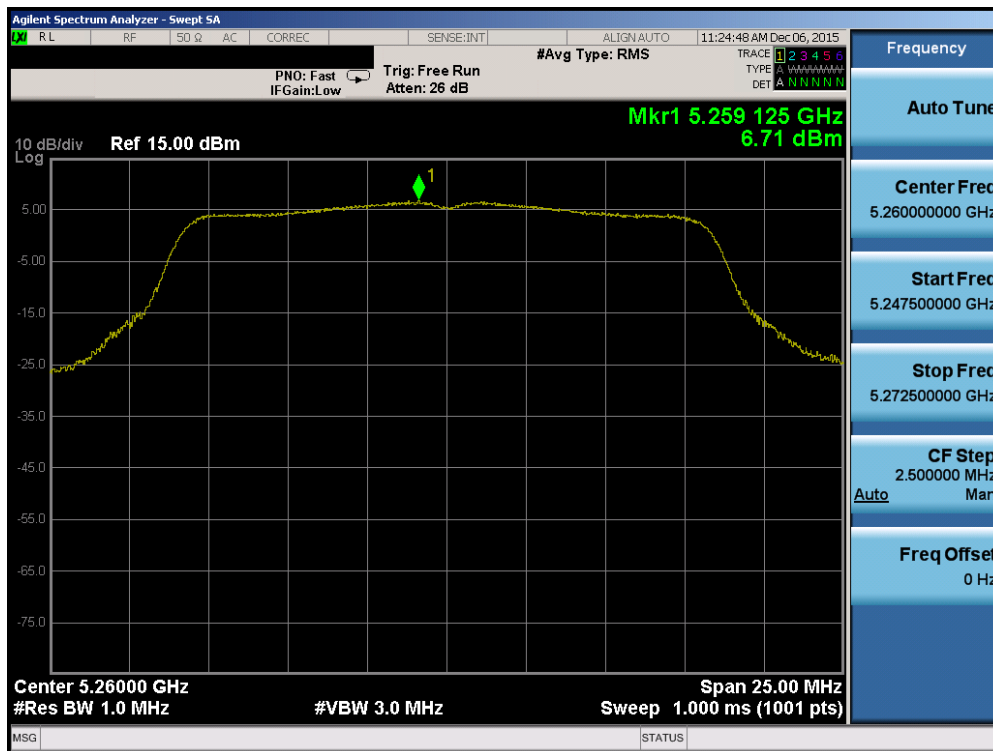


Plot 7-86. Power Spectral Density Plot (40MHz BW 802.11n (UNII Band 1) – Ch. 46)

FCC ID: A3LSMG9350	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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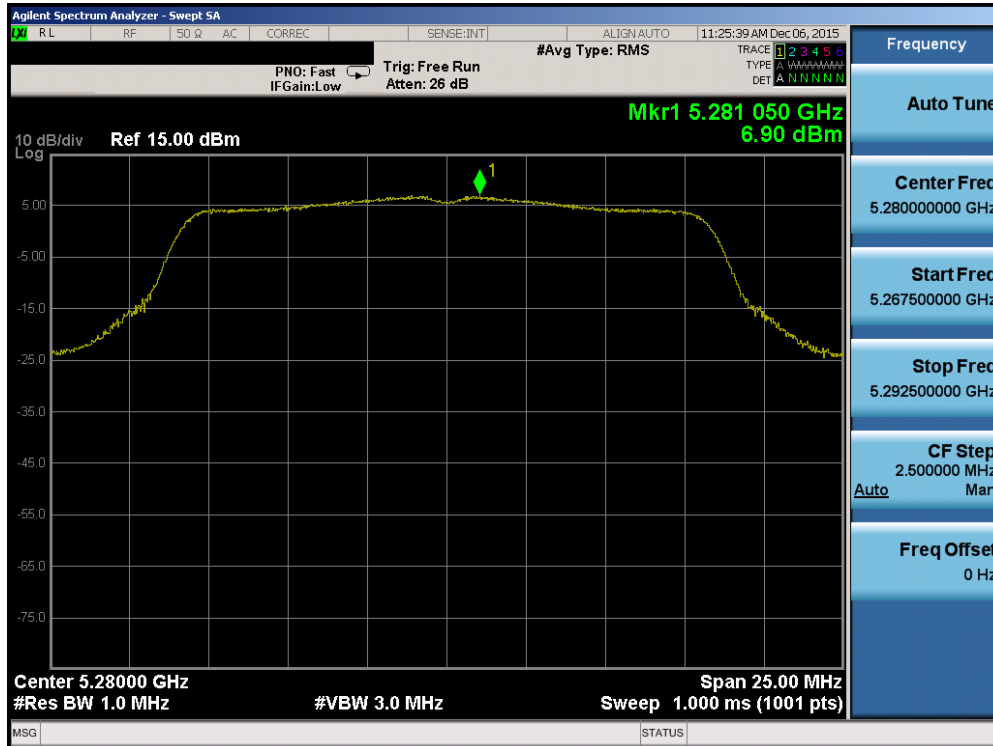


Plot 7-87. Power Spectral Density Plot (80MHz BW 802.11ac (UNII Band 1) – Ch. 42)

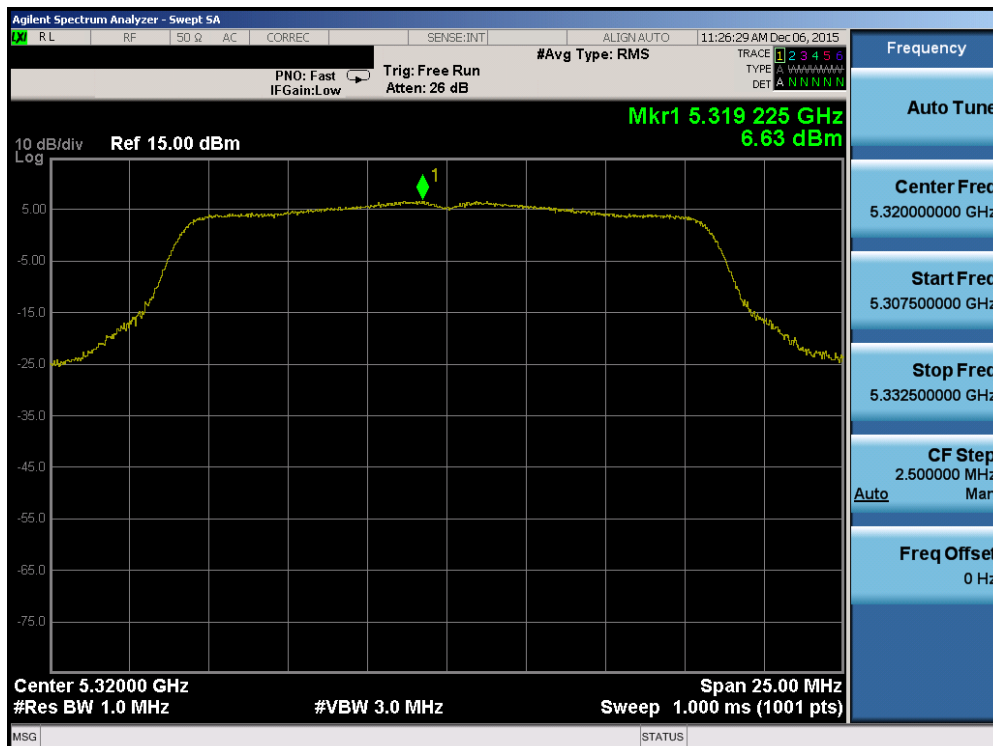


Plot 7-88. Power Spectral Density Plot (802.11a (UNII Band 2A) – Ch. 52)

FCC ID: A3LSMG9350	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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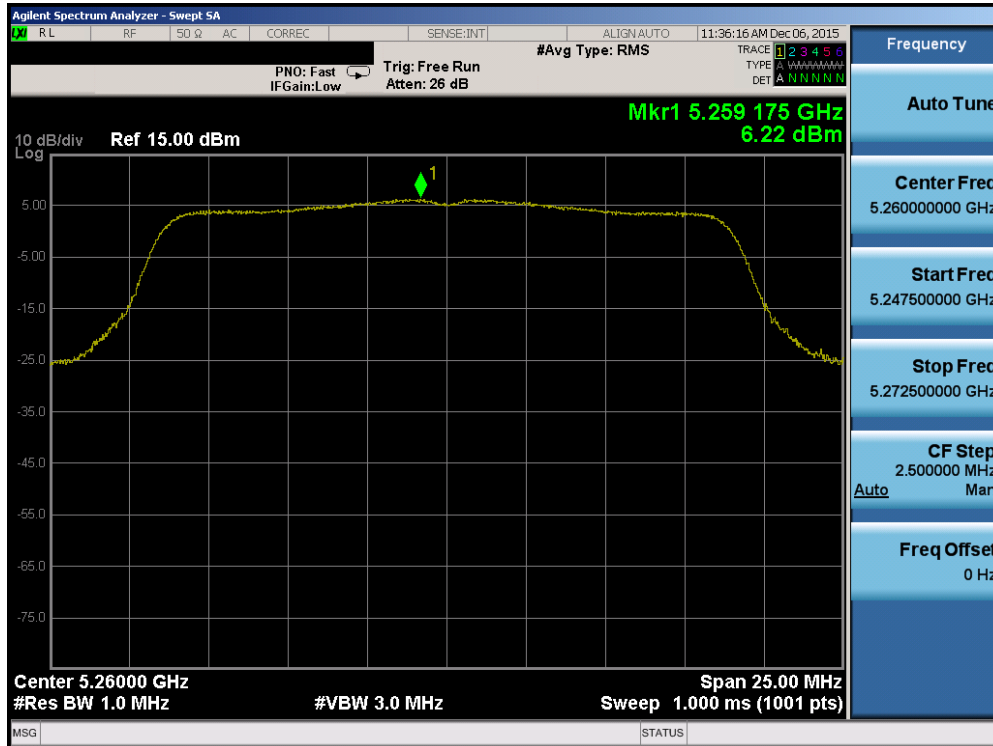


Plot 7-89. Power Spectral Density Plot (802.11a (UNII Band 2A) – Ch. 56)

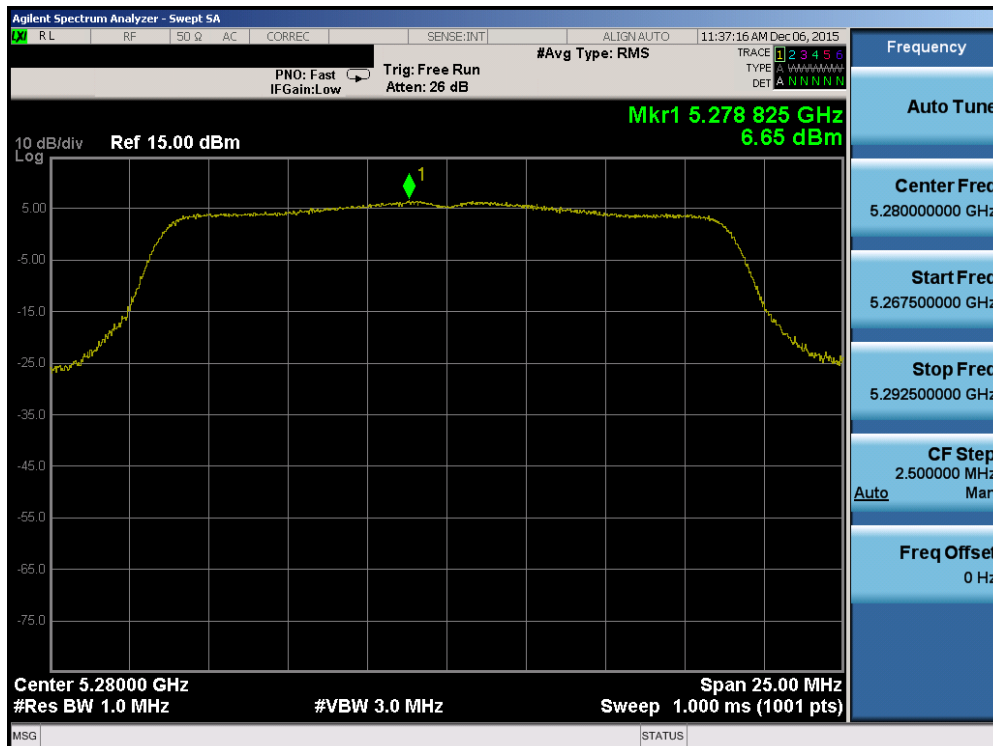


Plot 7-90. Power Spectral Density Plot (802.11a (UNII Band 2A) – Ch. 64)

FCC ID: A3LSMG9350	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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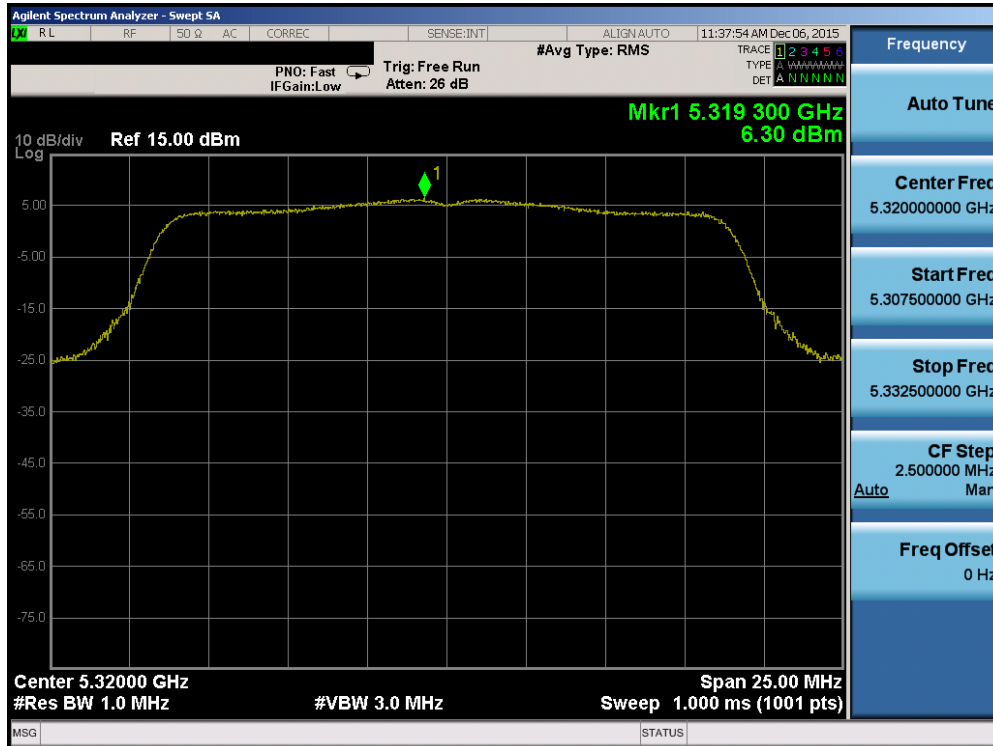


Plot 7-91. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 2A) – Ch. 52)

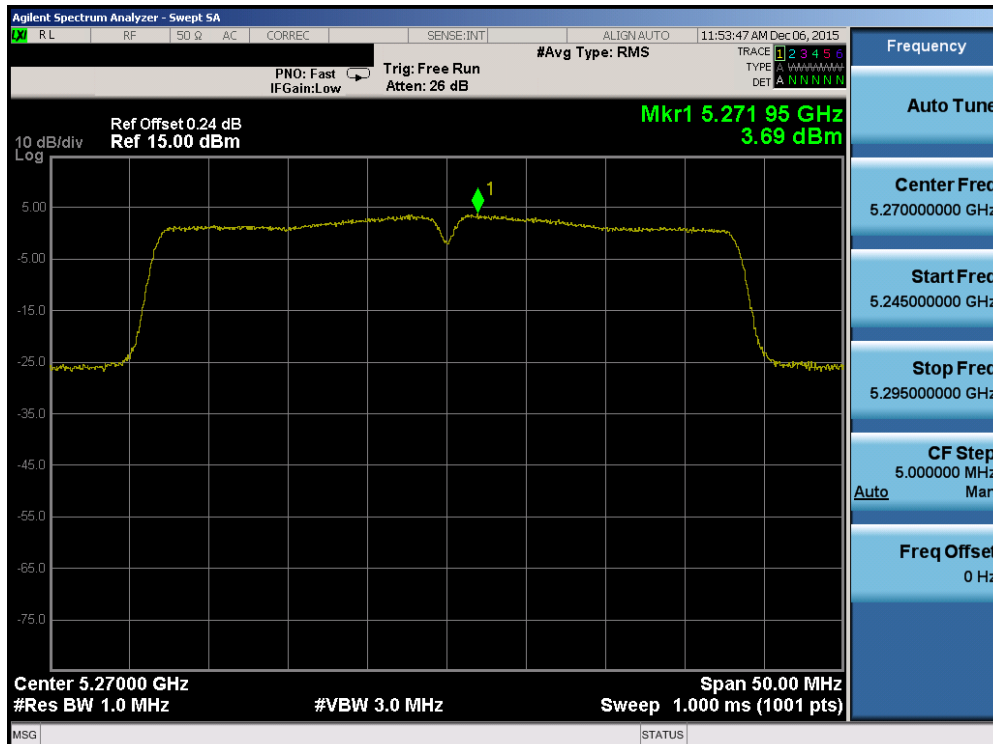


Plot 7-92. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 2A) – Ch. 56)

FCC ID: A3LSMG9350	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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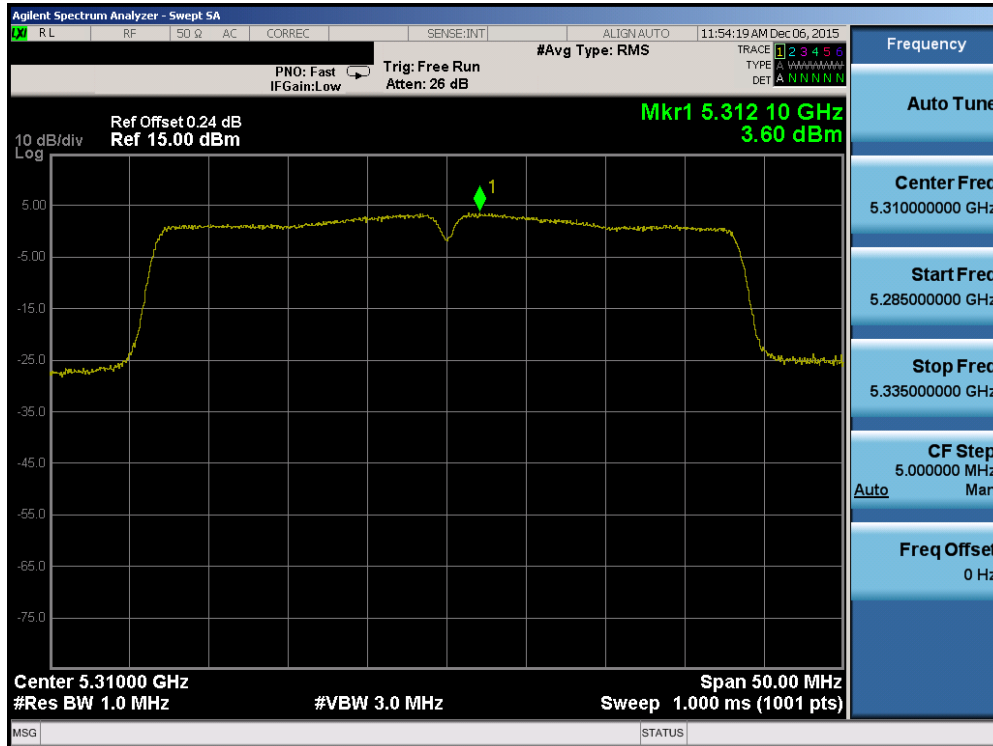


Plot 7-93. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 2A) – Ch. 64)

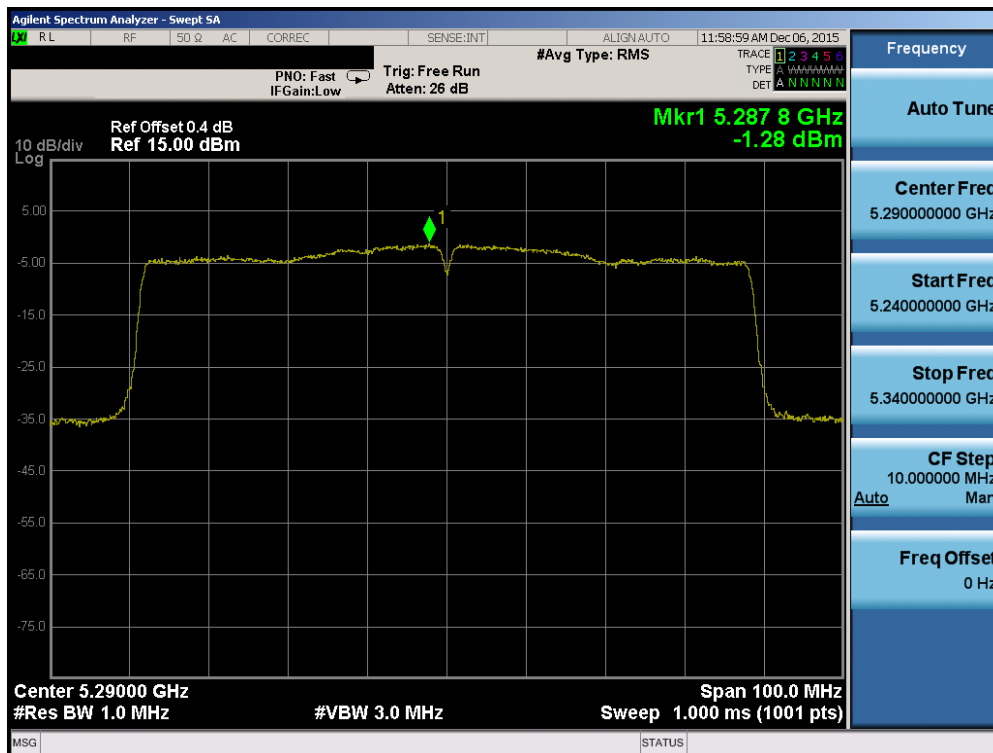


Plot 7-94. Power Spectral Density Plot (40MHz BW 802.11n (UNII Band 2A) – Ch. 54)

FCC ID: A3LSMG9350	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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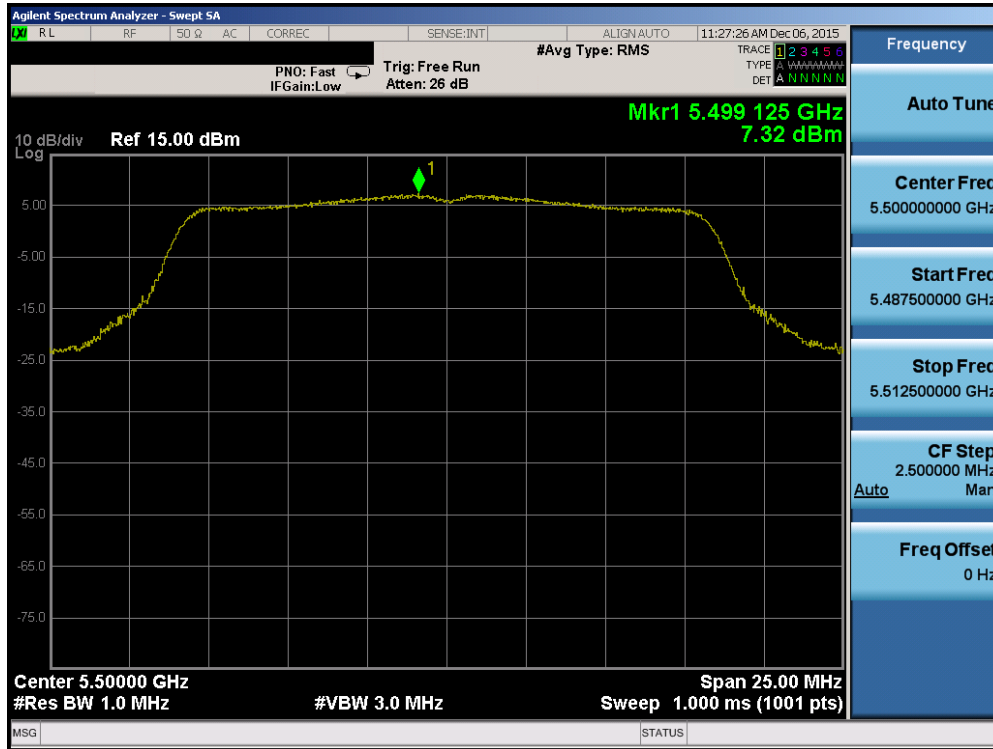


Plot 7-95. Power Spectral Density Plot (40MHz BW 802.11n (UNII Band 2A) – Ch. 62)

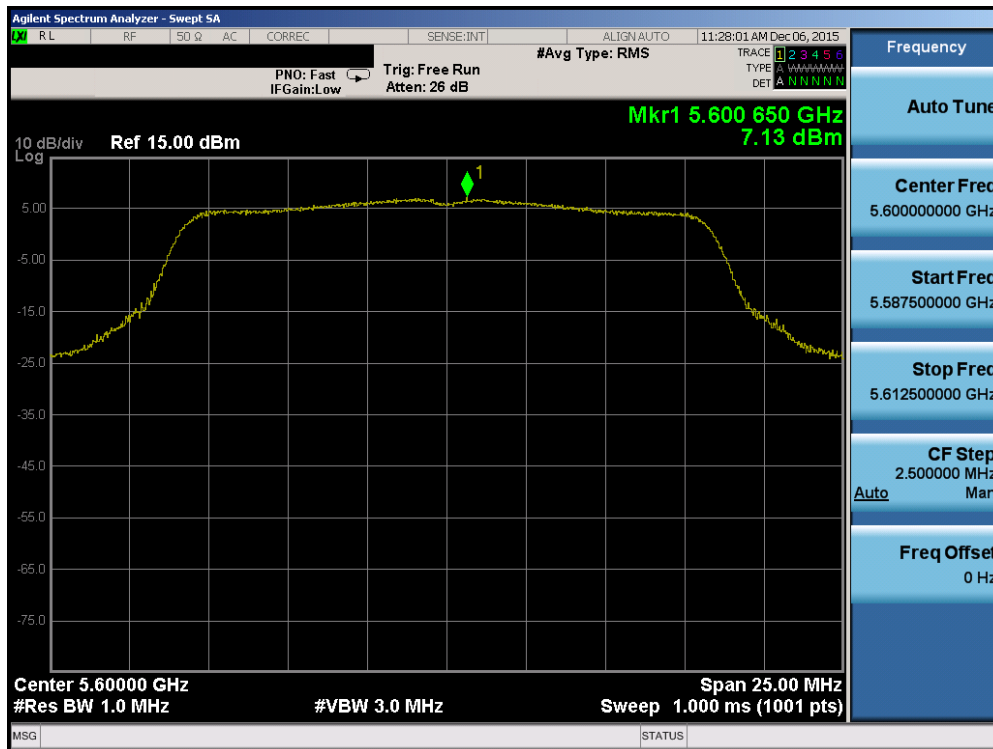


Plot 7-96. Power Spectral Density Plot (80MHz BW 802.11ac (UNII Band 2A) – Ch. 58)

FCC ID: A3LSMG9350	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 75 of 258

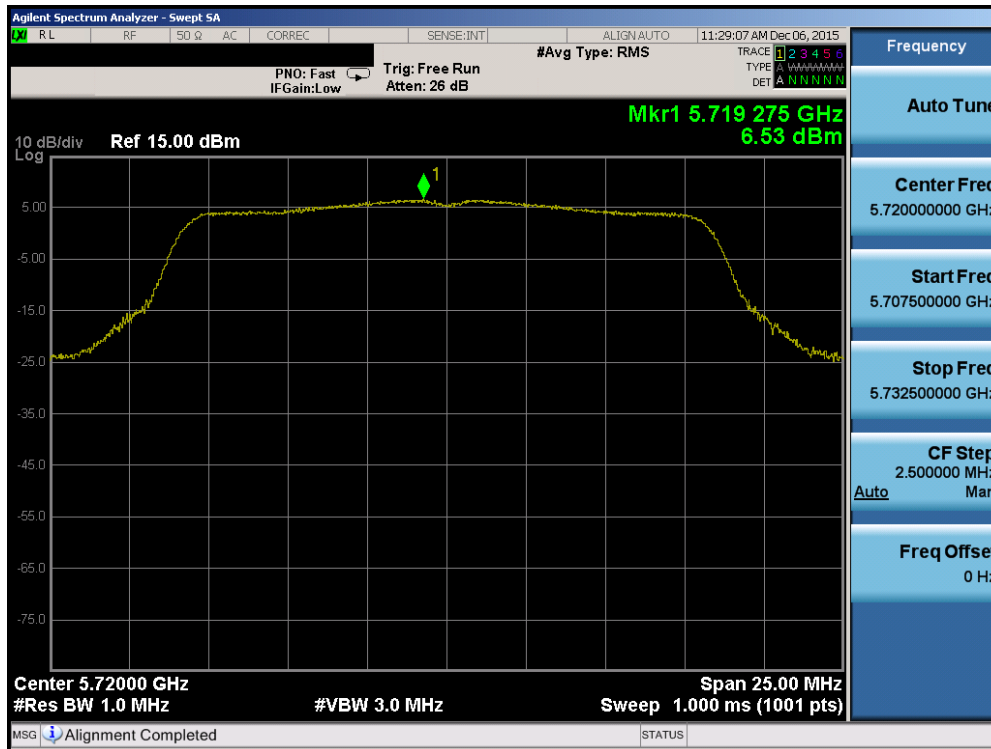


Plot 7-97. Power Spectral Density Plot (802.11a (UNII Band 2C) – Ch. 100)

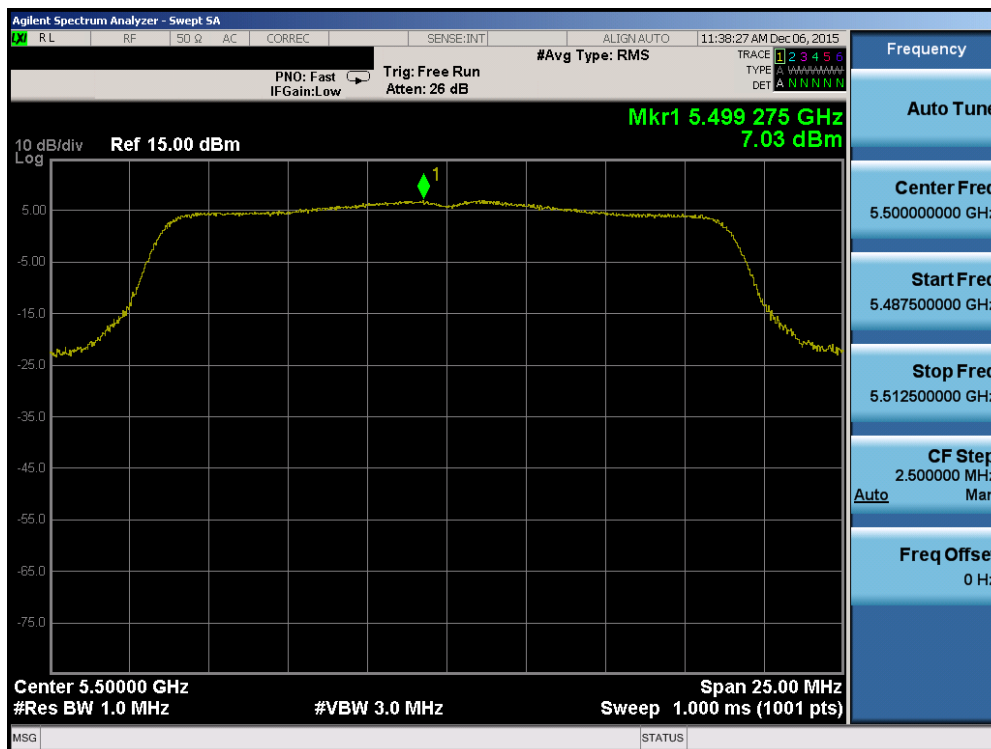


Plot 7-98. Power Spectral Density Plot (802.11a (UNII Band 2C) – Ch. 120)

FCC ID: A3LSMG9350	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 76 of 258

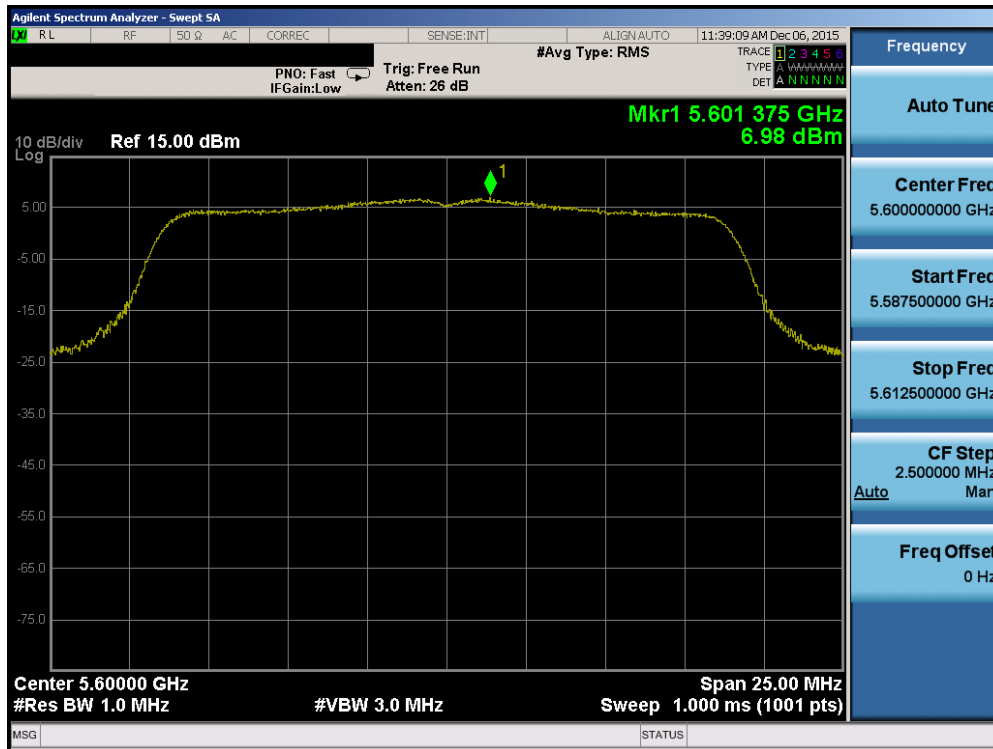


Plot 7-99. Power Spectral Density Plot (802.11a (UNII Band 2C) – Ch. 144)

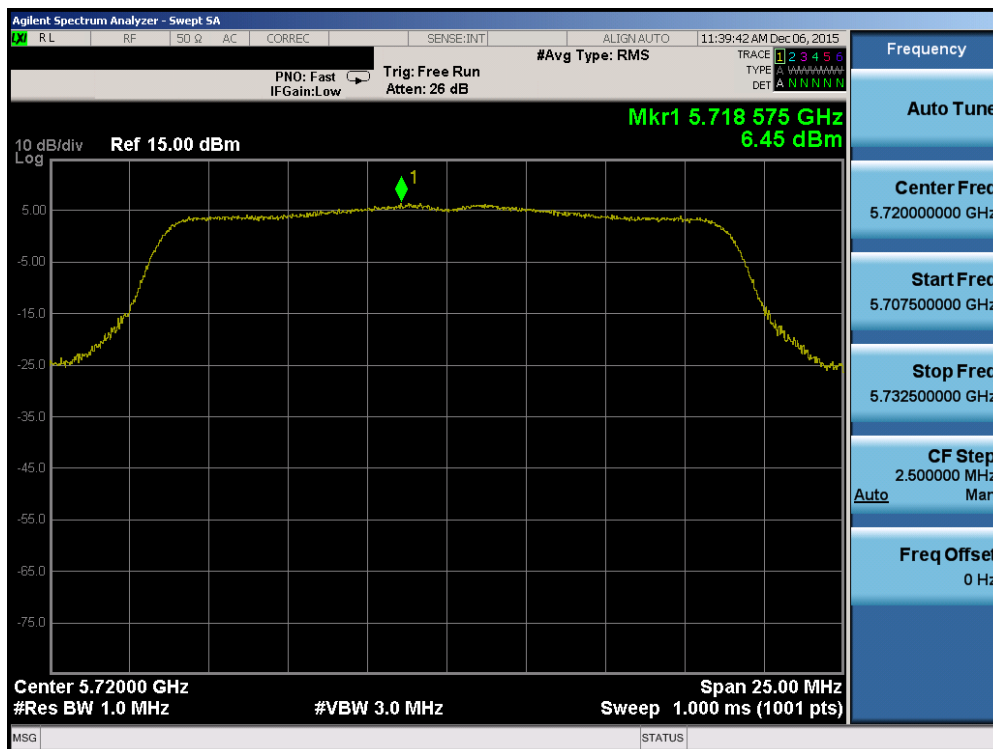


Plot 7-100. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 2C) – Ch. 100)

FCC ID: A3LSMG9350	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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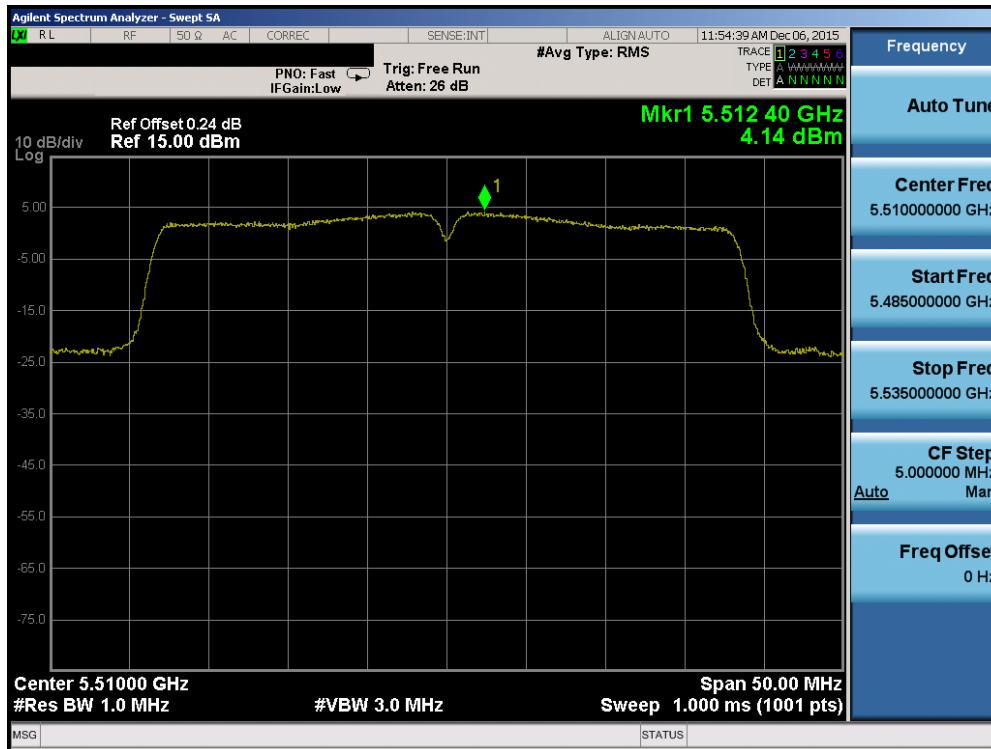


Plot 7-101. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 2C) – Ch. 120)

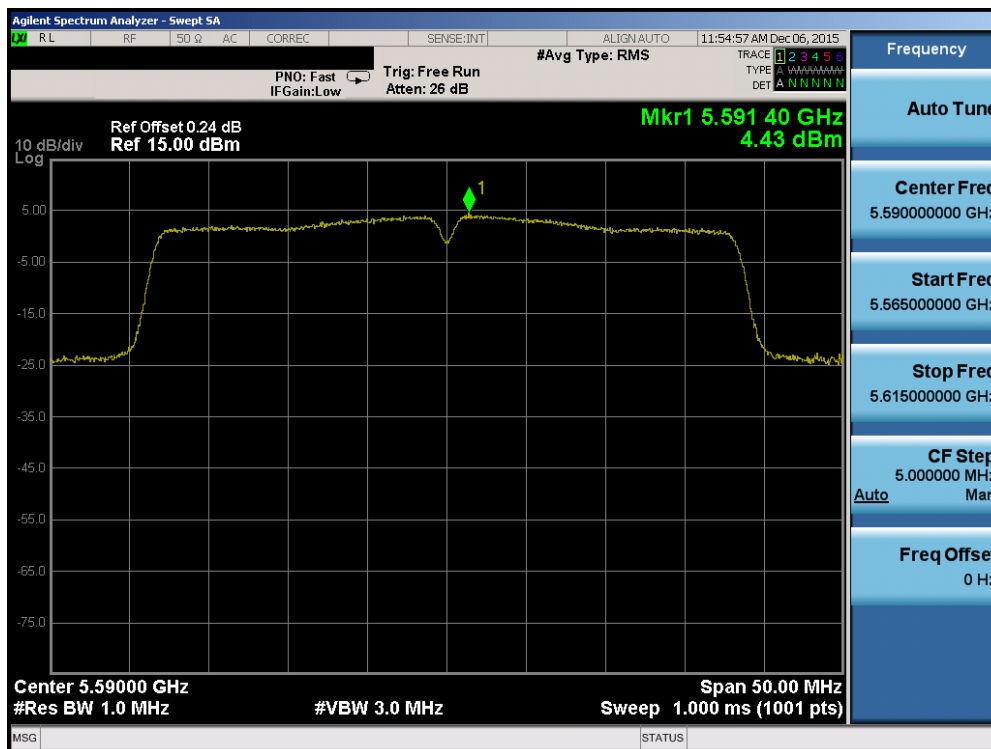


Plot 7-102. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 2C) – Ch. 144)

FCC ID: A3LSMG9350	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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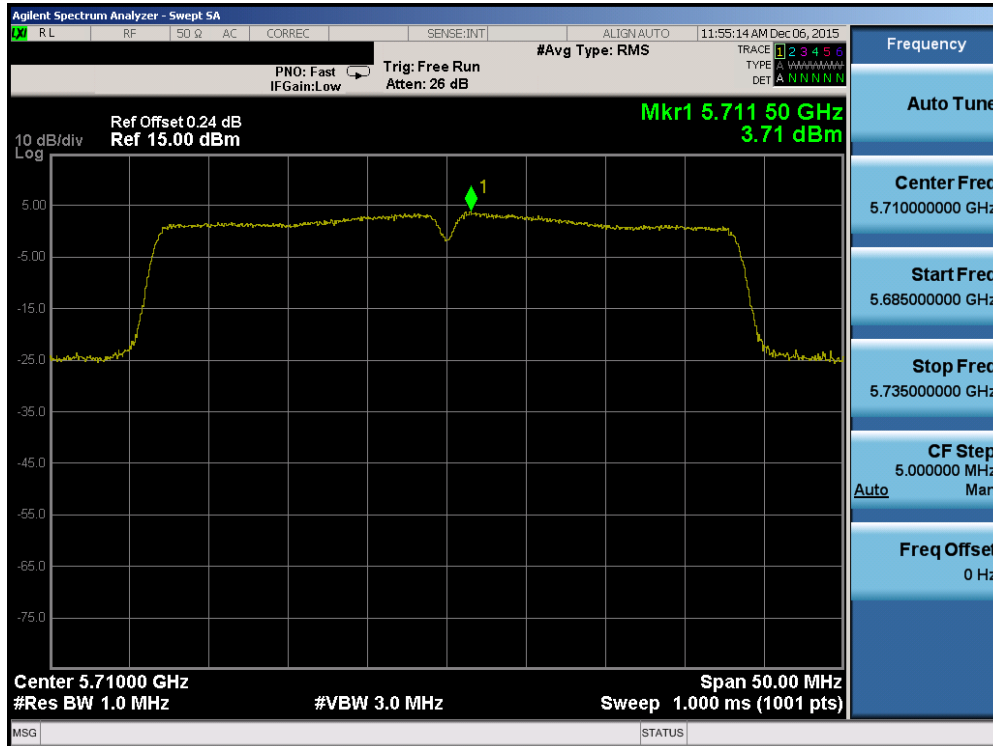


Plot 7-103. Power Spectral Density Plot (40MHz BW 802.11n (UNII Band 2C) – Ch. 102)

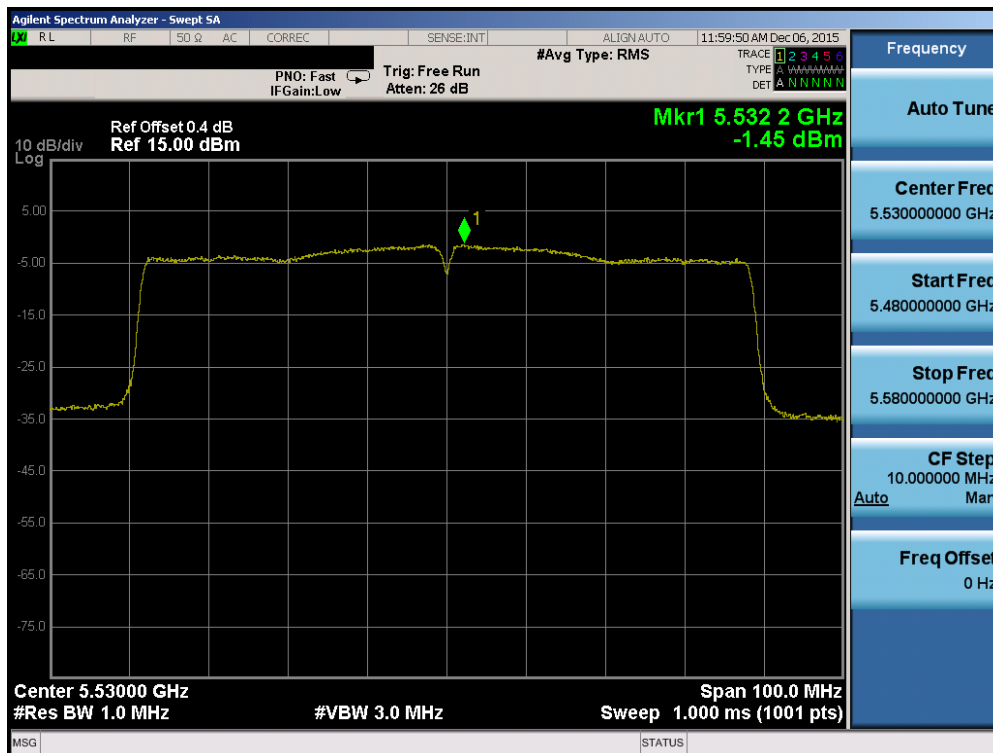


Plot 7-104. Power Spectral Density Plot (40MHz BW 802.11n (UNII Band 2C) – Ch. 118)

FCC ID: A3LSMG9350	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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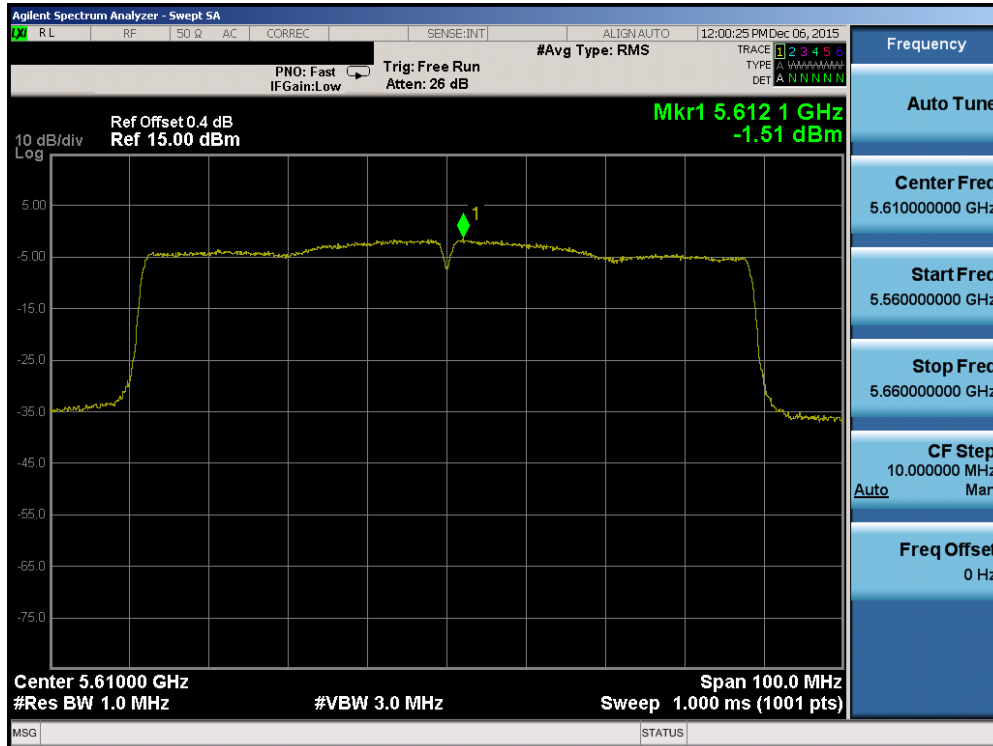


Plot 7-105. Power Spectral Density Plot (40MHz BW 802.11n (UNII Band 2C) – Ch. 142)

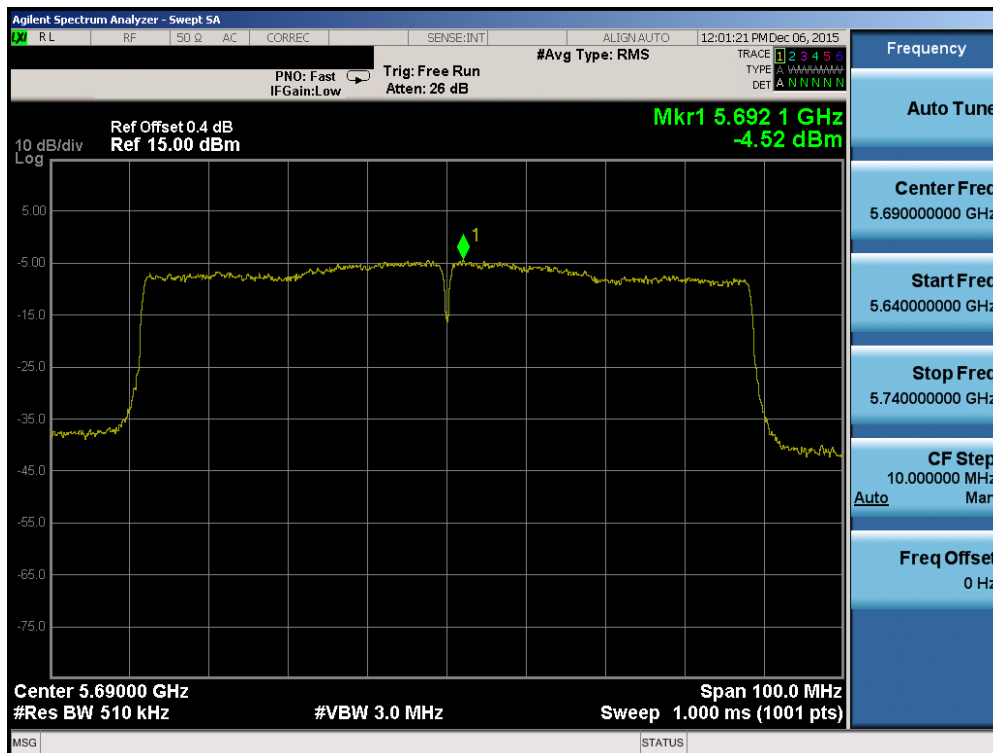


Plot 7-106. Power Spectral Density Plot (80MHz BW 802.11ac (UNII Band 2C) – Ch. 106)

FCC ID: A3LSMG9350	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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Plot 7-107. Power Spectral Density Plot (80MHz BW 802.11ac (UNII Band 2C) – Ch. 122)

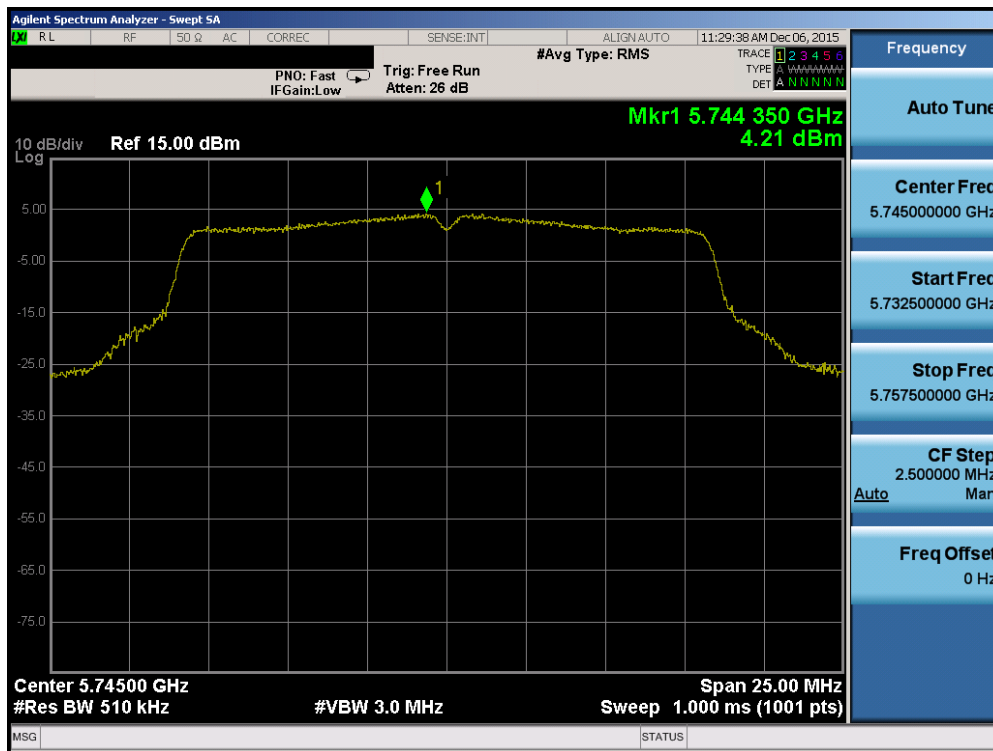


Plot 7-108. Power Spectral Density Plot (80MHz BW 802.11ac (UNII Band 2C) – Ch. 138)

FCC ID: A3LSMG9350	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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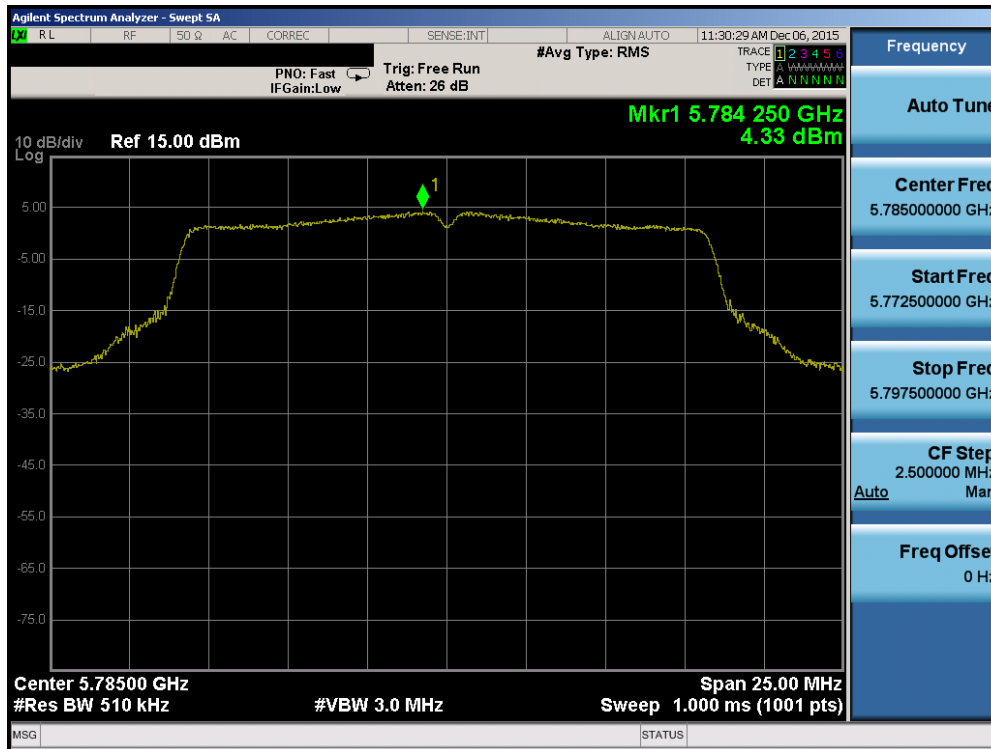
	Frequency [MHz]	Channel No.	802.11 Mode	Data Rate [Mbps]	Measured Power Density [dBm]	Max Permissible Power Density [dBm/500kHz]	Margin [dB]	Pass / Fail
Band 3	5745	149	a	6	4.21	30.0	-25.79	Pass
	5785	157	a	6	4.33	30.0	-25.67	Pass
	5825	165	a	6	4.10	30.0	-25.90	Pass
	5745	149	n (20MHz)	6.5/7.2 (MCS0)	4.06	30.0	-25.94	Pass
	5785	157	n (20MHz)	6.5/7.2 (MCS0)	3.95	30.0	-26.05	Pass
	5825	165	n (20MHz)	6.5/7.2 (MCS0)	3.66	30.0	-26.34	Pass
	5755	151	n (40MHz)	13.5/15 (MCS0)	1.18	30.0	-28.82	Pass
	5795	159	n (40MHz)	13.5/15 (MCS0)	1.23	30.0	-28.77	Pass
	5775	155	ac (80MHz)	29.3/32.5 (MCS0)	-1.34	30.0	-31.34	Pass

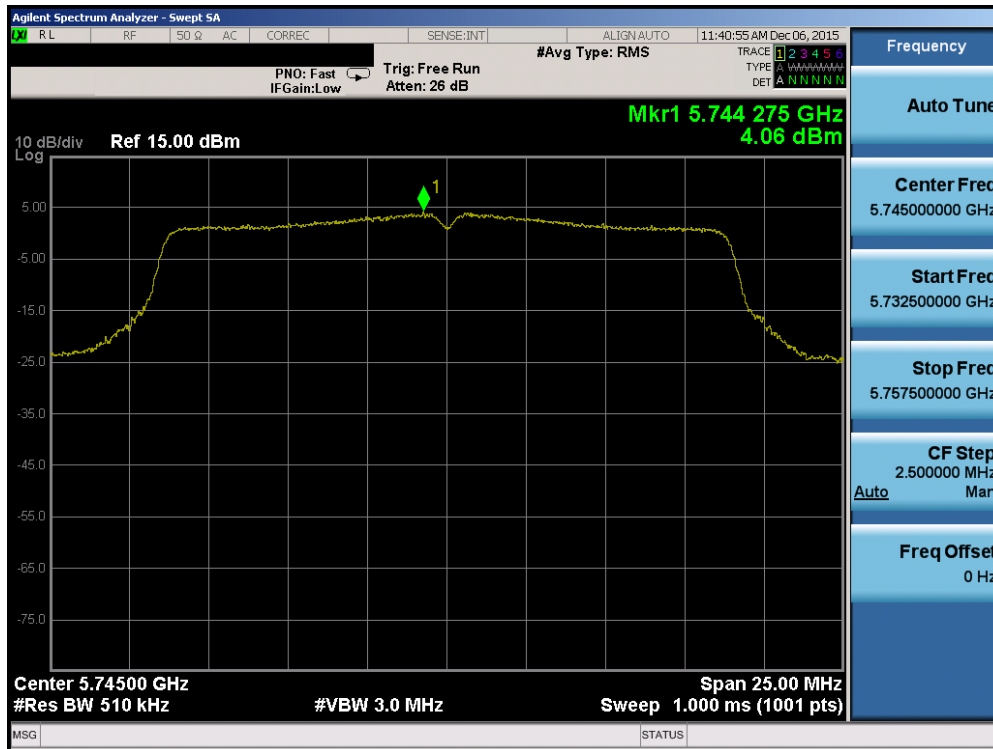
Table 7-18. Band 3 Conducted Power Spectral Density Measurements



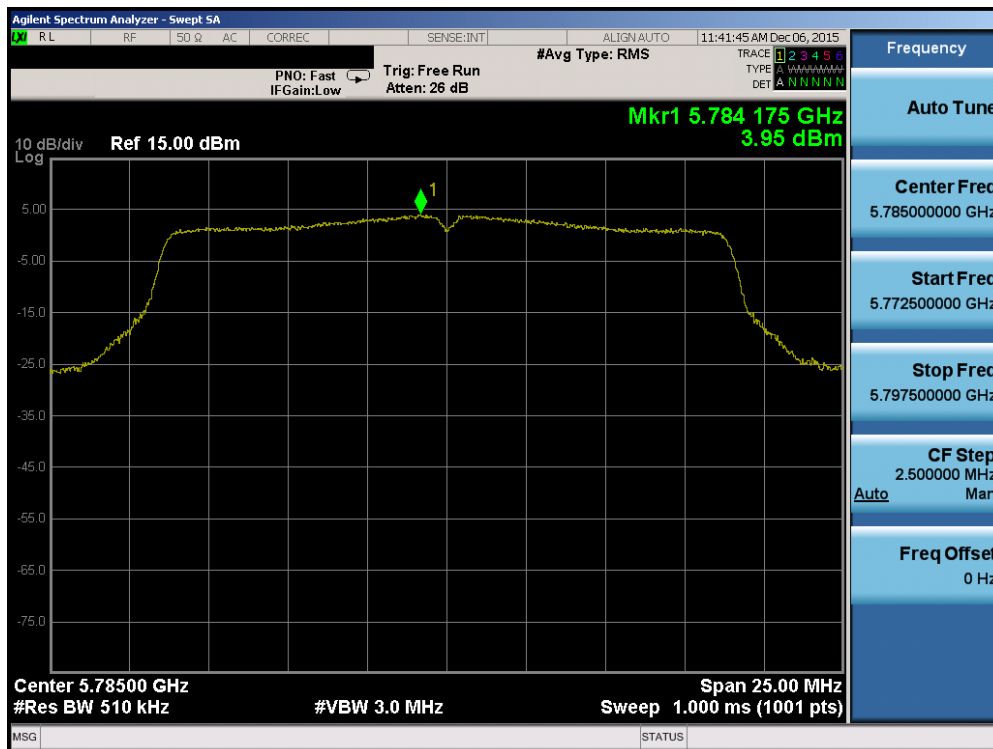
Plot 7-109. Power Spectral Density Plot (802.11a (UNII Band 3) – Ch. 149)

FCC ID: A3LSMG9350	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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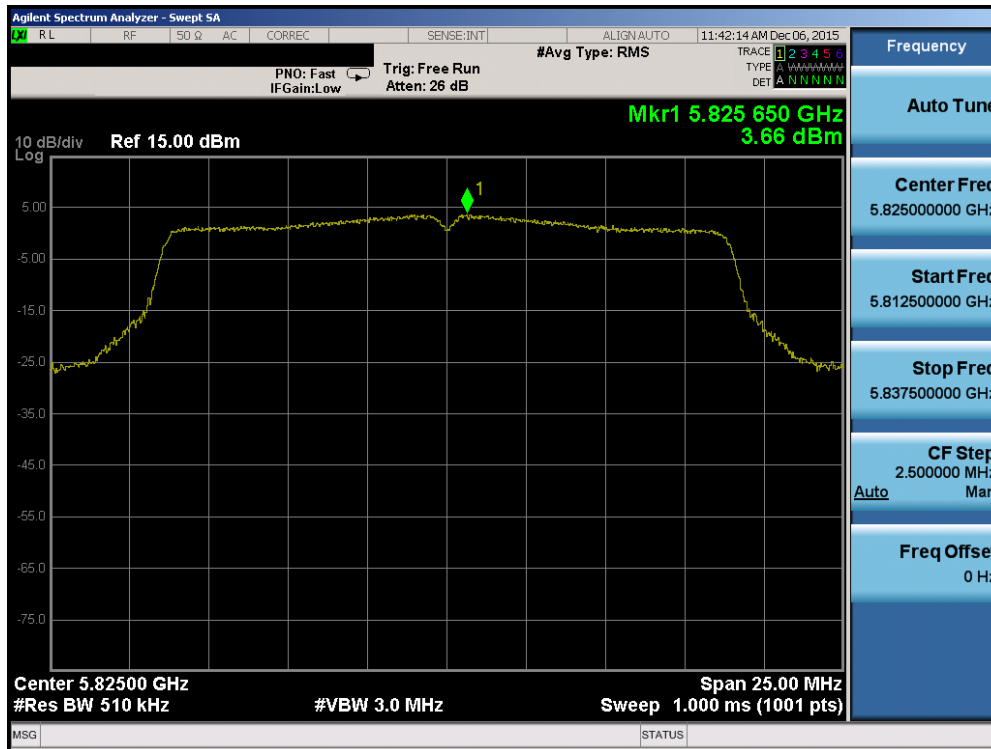


Plot 7-112. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 3) – Ch. 149)

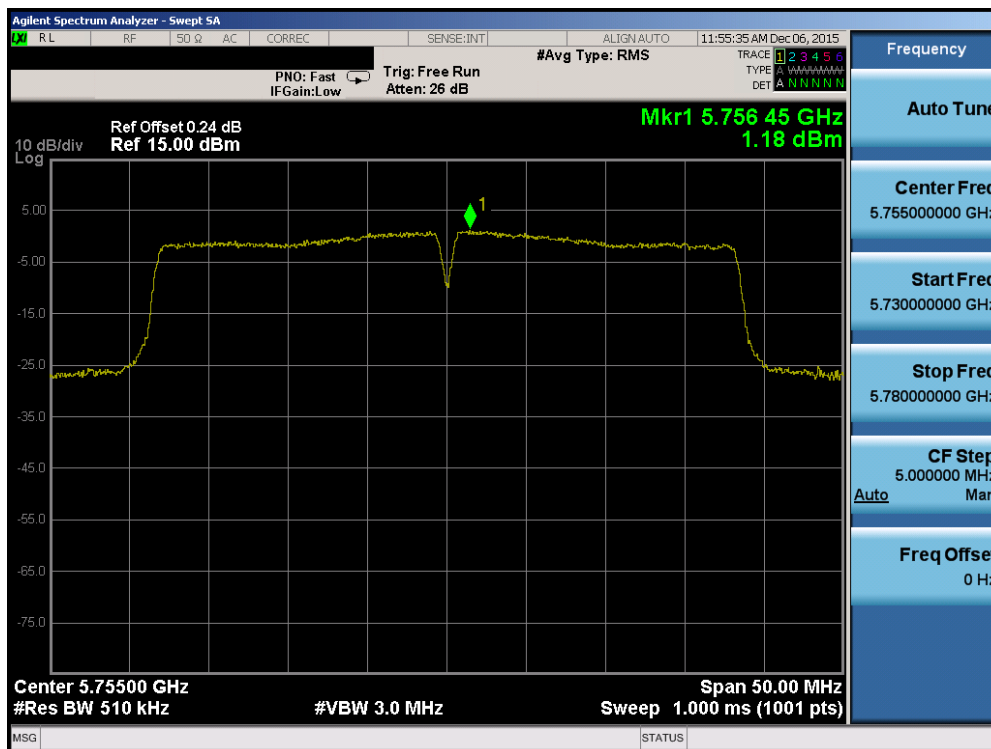


Plot 7-113. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 3) – Ch. 157)

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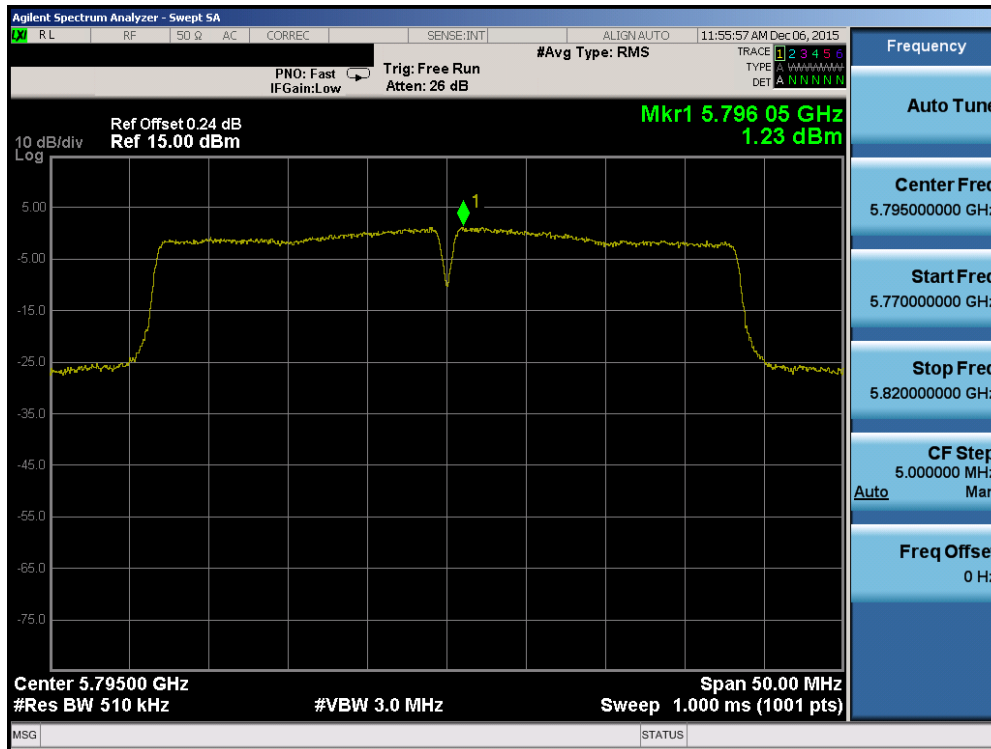


Plot 7-114. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 3) – Ch. 165)

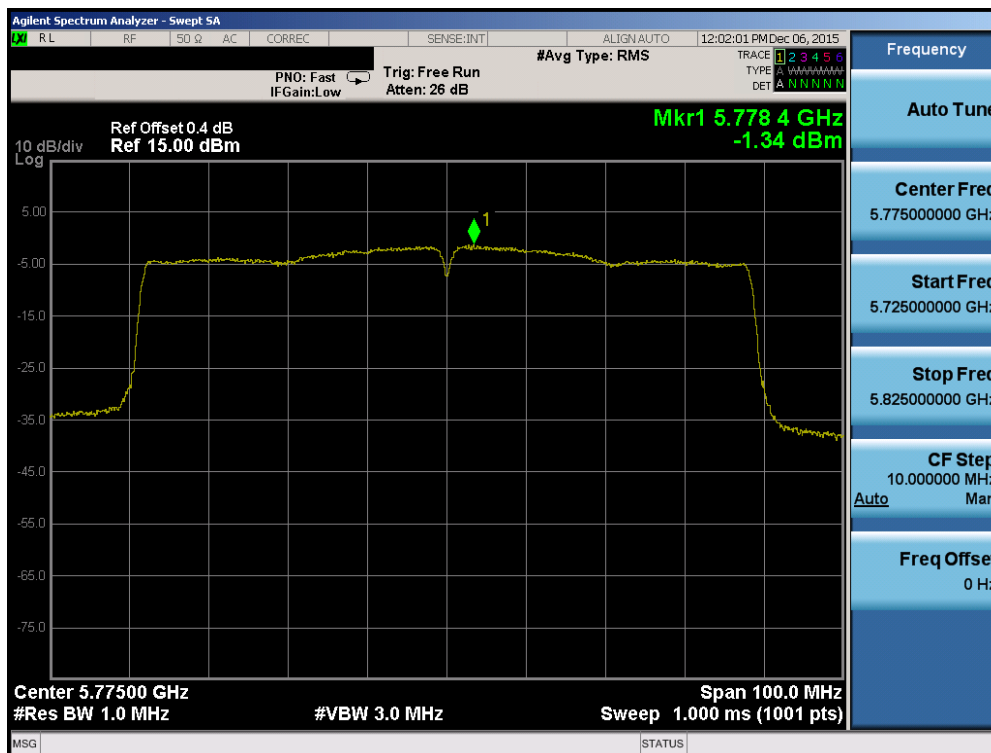


Plot 7-115. Power Spectral Density Plot (40MHz BW 802.11n (UNII Band 3) – Ch. 151)

FCC ID: A3LSMG9350	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 85 of 258



Plot 7-116. Power Spectral Density Plot (40MHz BW 802.11n (UNII Band 3) – Ch. 159)



Plot 7-117. Power Spectral Density Plot (80MHz BW 802.11ac (UNII Band 3) – Ch. 155)

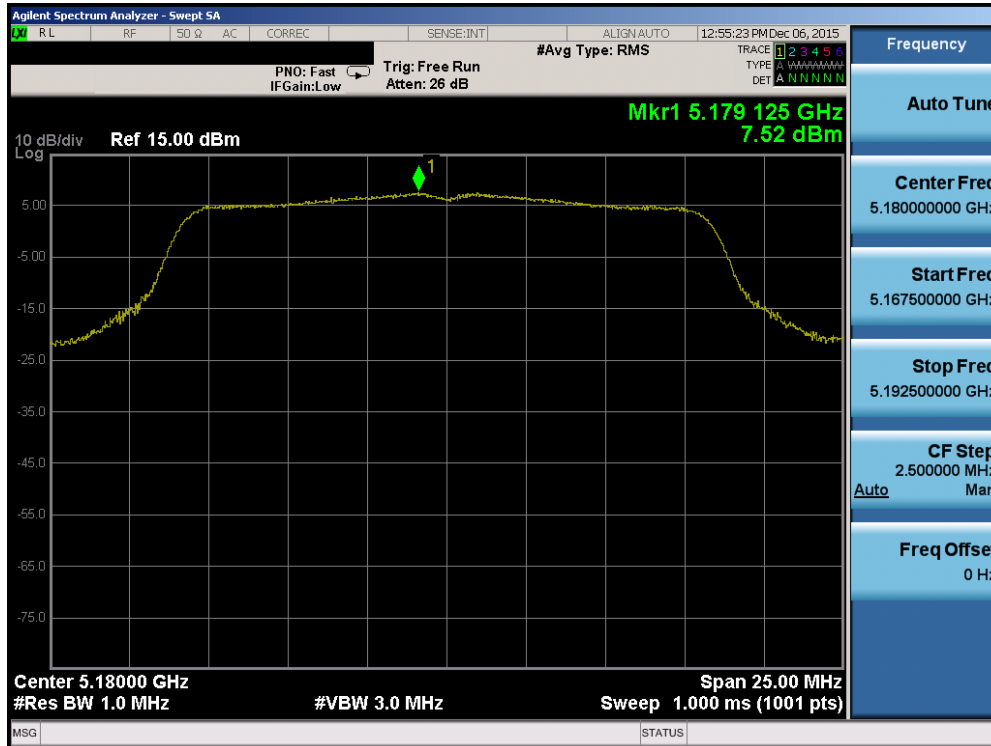
FCC ID: A3LSMG9350	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 86 of 258

Antenna-2 Power Spectral Density Measurements

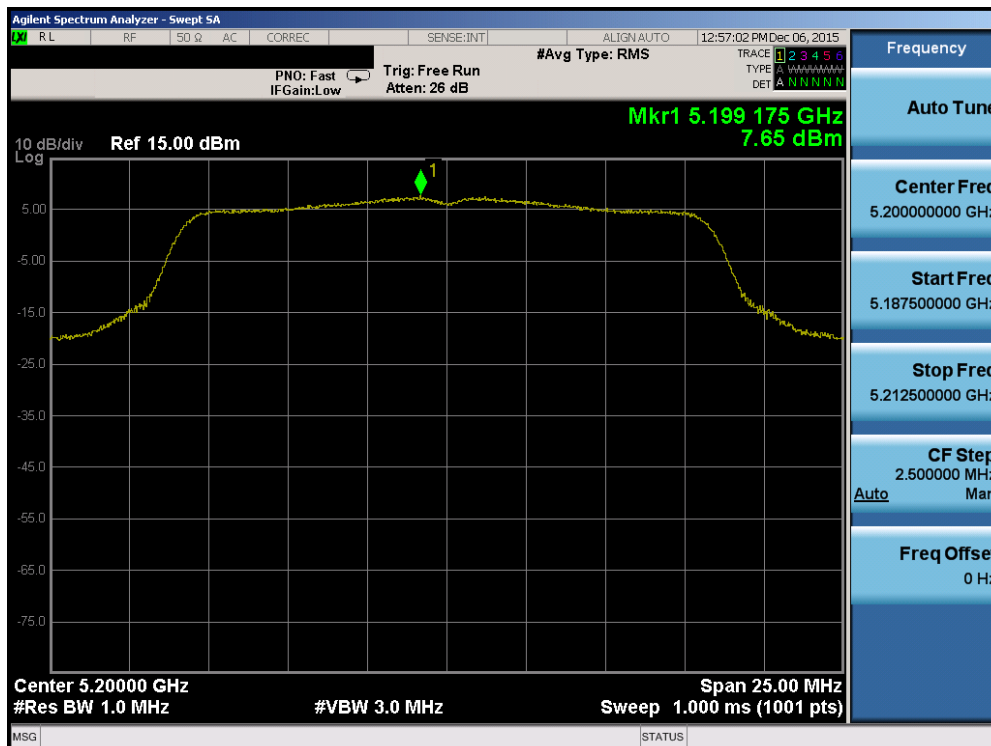
	Frequency [MHz]	Channel No.	802.11 Mode	Data Rate [Mbps]	Measured Power Density [dBm]	Max Permissible Power Density [dBm/MHz]	Margin [dB]	Pass / Fail
Band 1	5180	36	a	6	7.52	11.0	-3.48	Pass
	5200	40	a	6	7.65	11.0	-3.35	Pass
	5240	48	a	6	7.56	11.0	-3.44	Pass
	5180	36	n (20MHz)	6.5/7.2 (MCS0)	5.86	11.0	-5.14	Pass
	5200	40	n (20MHz)	6.5/7.2 (MCS0)	5.90	11.0	-5.11	Pass
	5240	48	n (20MHz)	6.5/7.2 (MCS0)	6.22	11.0	-4.78	Pass
	5190	38	n (40MHz)	13.5/15 (MCS0)	1.65	11.0	-9.35	Pass
	5230	46	n (40MHz)	13.5/15 (MCS0)	2.04	11.0	-8.96	Pass
	5210	42	ac (80MHz)	29.3/32.5 (MCS0)	-2.50	11.0	-13.50	Pass
Band 2A	5260	52	a	6	8.11	11.0	-2.89	Pass
	5280	56	a	6	7.84	11.0	-3.16	Pass
	5320	64	a	6	7.94	11.0	-3.06	Pass
	5260	52	n (20MHz)	6.5/7.2 (MCS0)	6.47	11.0	-4.53	Pass
	5280	56	n (20MHz)	6.5/7.2 (MCS0)	6.22	11.0	-4.79	Pass
	5320	64	n (20MHz)	6.5/7.2 (MCS0)	6.58	11.0	-4.42	Pass
	5270	54	n (40MHz)	13.5/15 (MCS0)	1.09	11.0	-9.91	Pass
	5310	62	n (40MHz)	13.5/15 (MCS0)	1.31	11.0	-9.69	Pass
	5290	58	ac (80MHz)	29.3/32.5 (MCS0)	-2.22	11.0	-13.22	Pass
Band 2C	5500	100	a	6	8.29	11.0	-2.71	Pass
	5600	120	a	6	8.20	11.0	-2.80	Pass
	5720	144	a	6	7.92	11.0	-3.08	Pass
	5500	100	n (20MHz)	6.5/7.2 (MCS0)	6.91	11.0	-4.09	Pass
	5600	120	n (20MHz)	6.5/7.2 (MCS0)	6.94	11.0	-4.06	Pass
	5720	144	n (20MHz)	6.5/7.2 (MCS0)	6.65	11.0	-4.35	Pass
	5510	102	n (40MHz)	13.5/15 (MCS0)	1.66	11.0	-9.34	Pass
	5590	118	n (40MHz)	13.5/15 (MCS0)	1.48	11.0	-9.53	Pass
	5710	142	n (40MHz)	13.5/15 (MCS0)	1.44	11.0	-9.56	Pass
	5530	106	ac (80MHz)	29.3/32.5 (MCS0)	-2.03	11.0	-13.03	Pass
	5610	122	ac (80MHz)	29.3/32.5 (MCS0)	-1.93	11.0	-12.93	Pass
	5690	138	ac (80MHz)	29.3/32.5 (MCS0)	-5.06	11.0	-16.06	Pass

Table 7-19. Conducted Power Spectral Density Measurements

FCC ID: A3LSMG9350		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 87 of 258

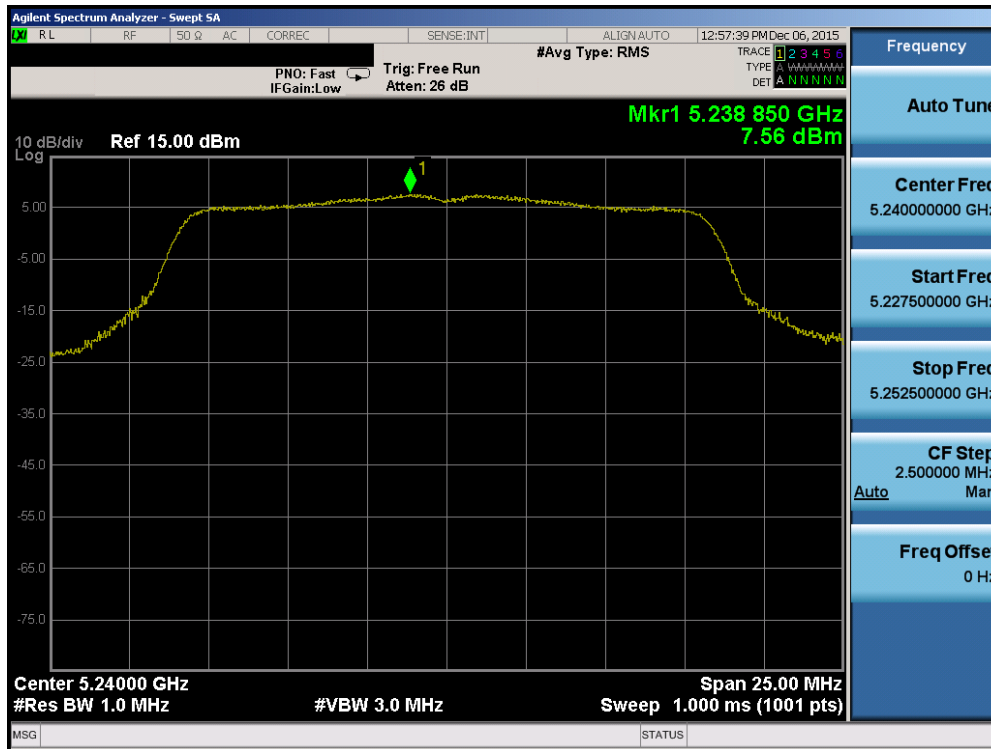


Plot 7-118. Power Spectral Density Plot (802.11a (UNII Band 1) – Ch. 36)

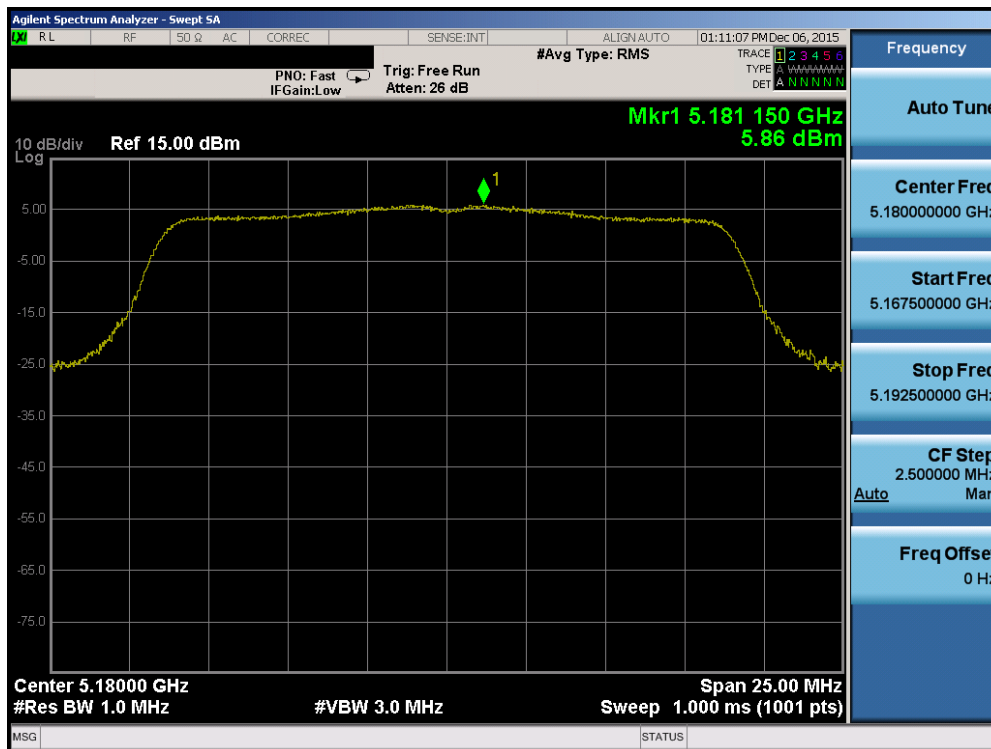


Plot 7-119. Power Spectral Density Plot (802.11a (UNII Band 1) – Ch. 40)

FCC ID: A3LSMG9350	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 88 of 258

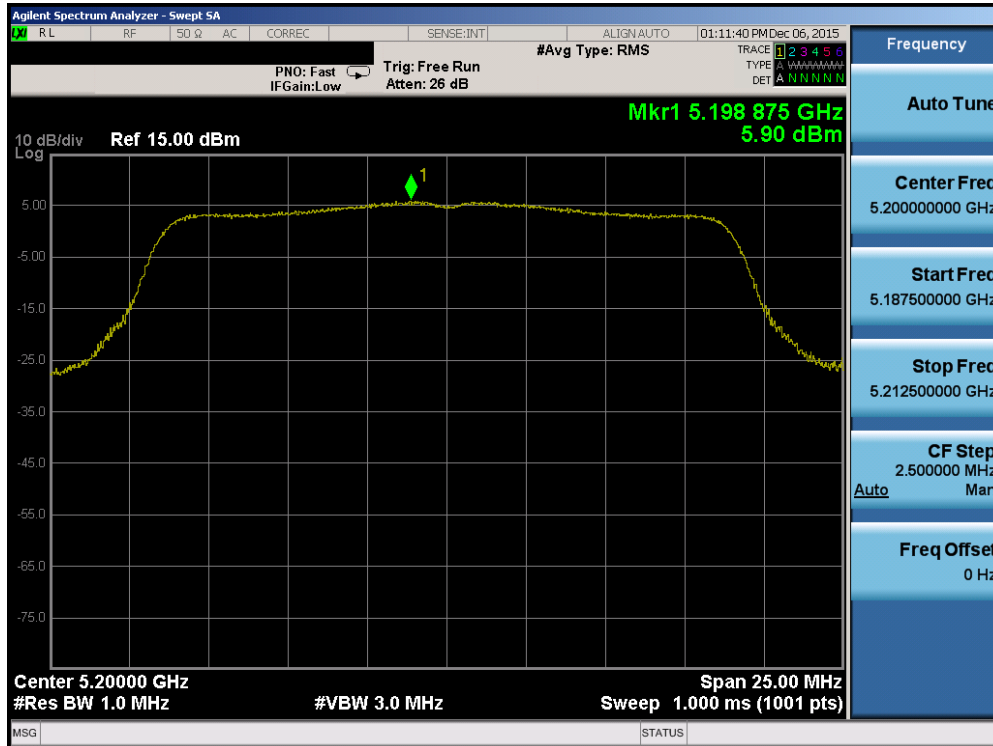


Plot 7-120. Power Spectral Density Plot (802.11a (UNII Band 1) – Ch. 48)

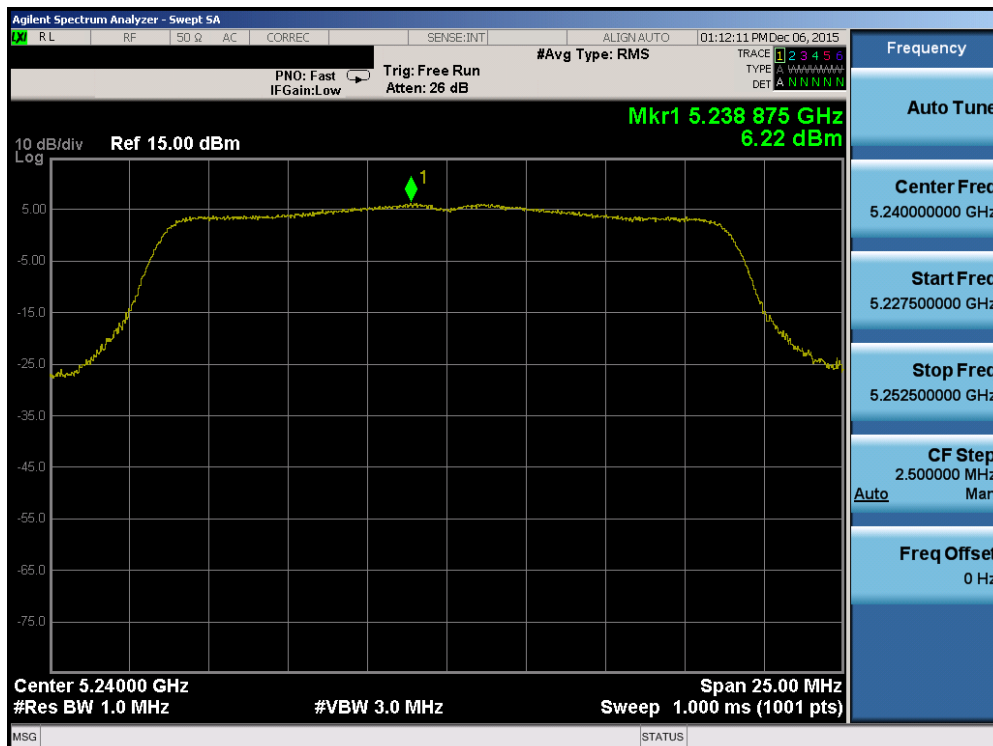


Plot 7-121. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 1) – Ch. 36)

FCC ID: A3LSMG9350	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 89 of 258

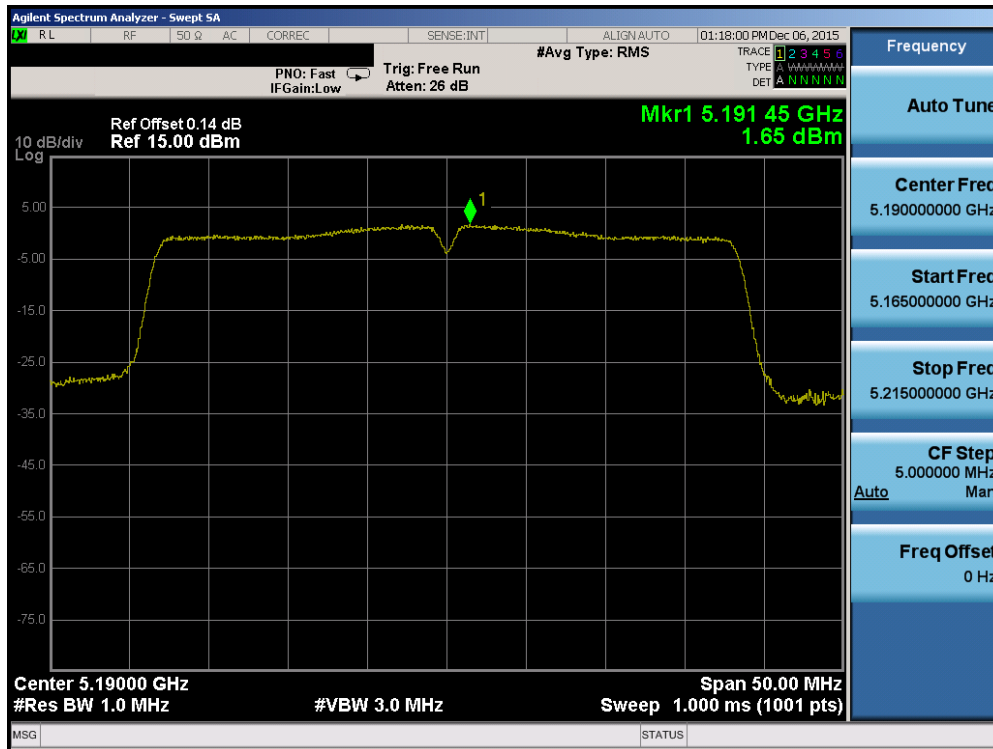


Plot 7-122. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 1) – Ch. 40)

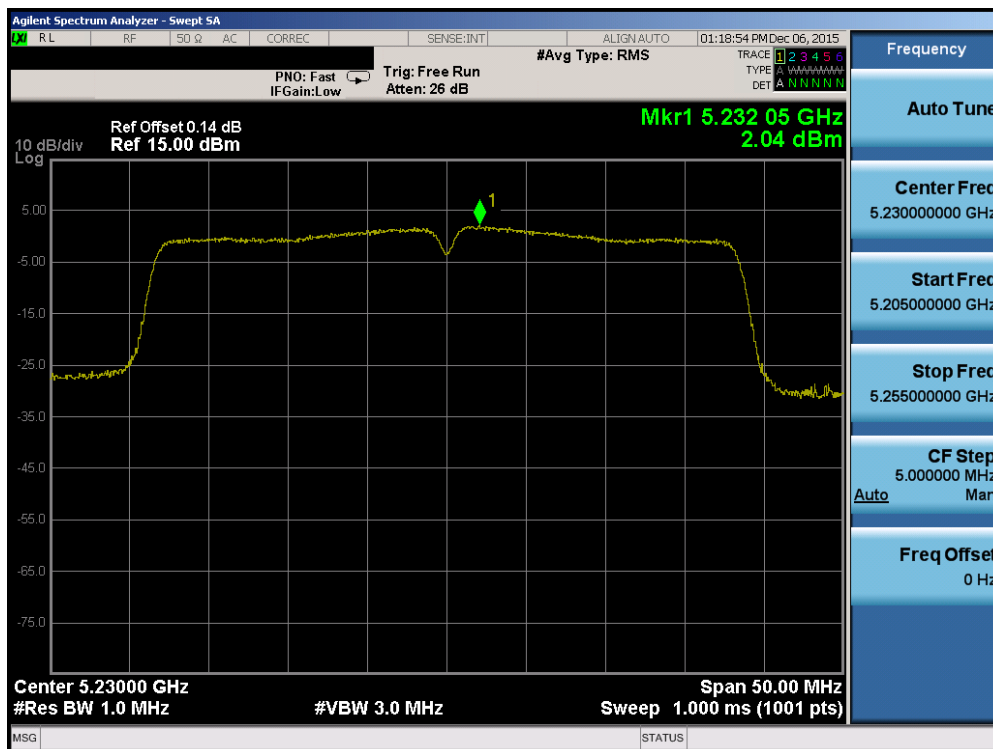


Plot 7-123. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 1) – Ch. 48)

FCC ID: A3LSMG9350	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 90 of 258

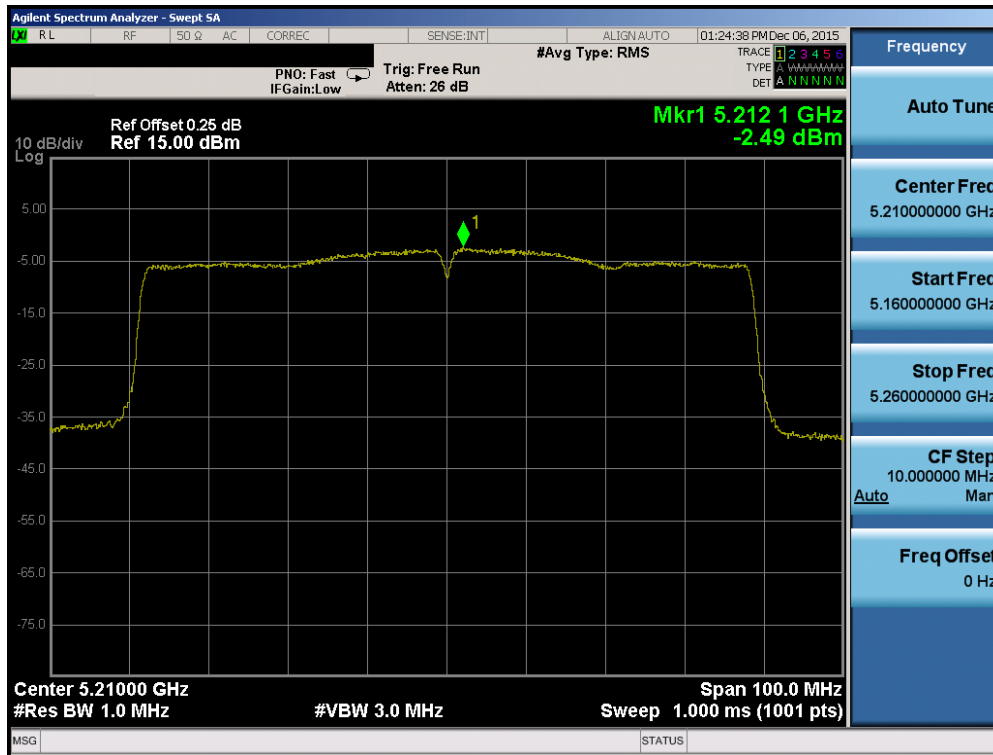


Plot 7-124. Power Spectral Density Plot (40MHz BW 802.11n (UNII Band 1) – Ch. 38)

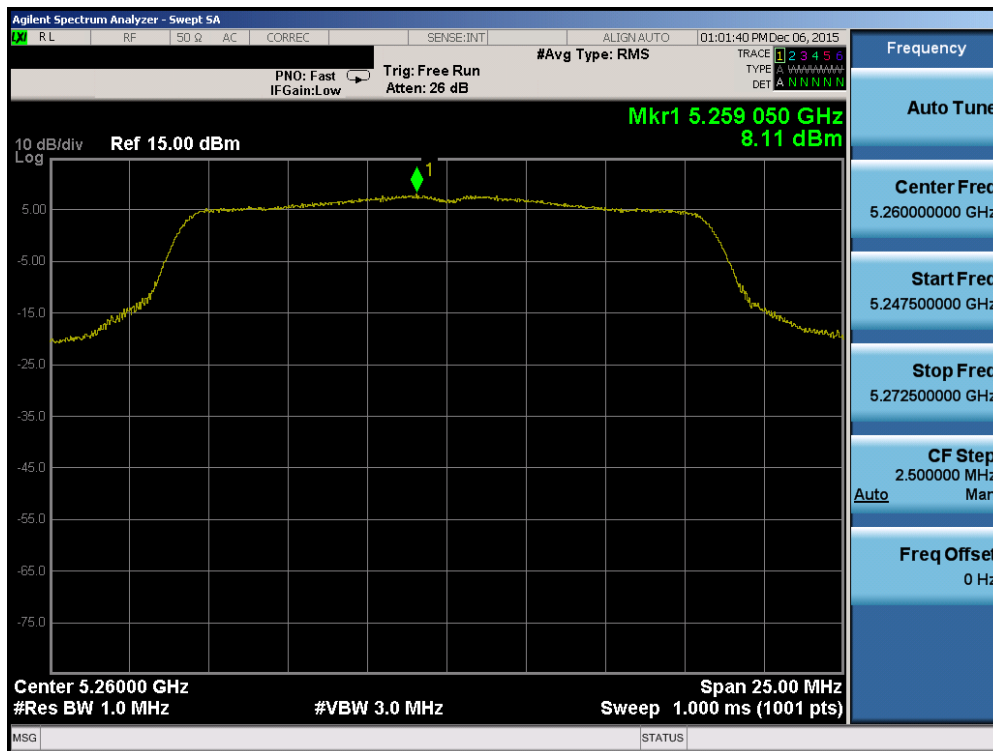


Plot 7-125. Power Spectral Density Plot (40MHz BW 802.11n (UNII Band 1) – Ch. 46)

FCC ID: A3LSMG9350	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 91 of 258

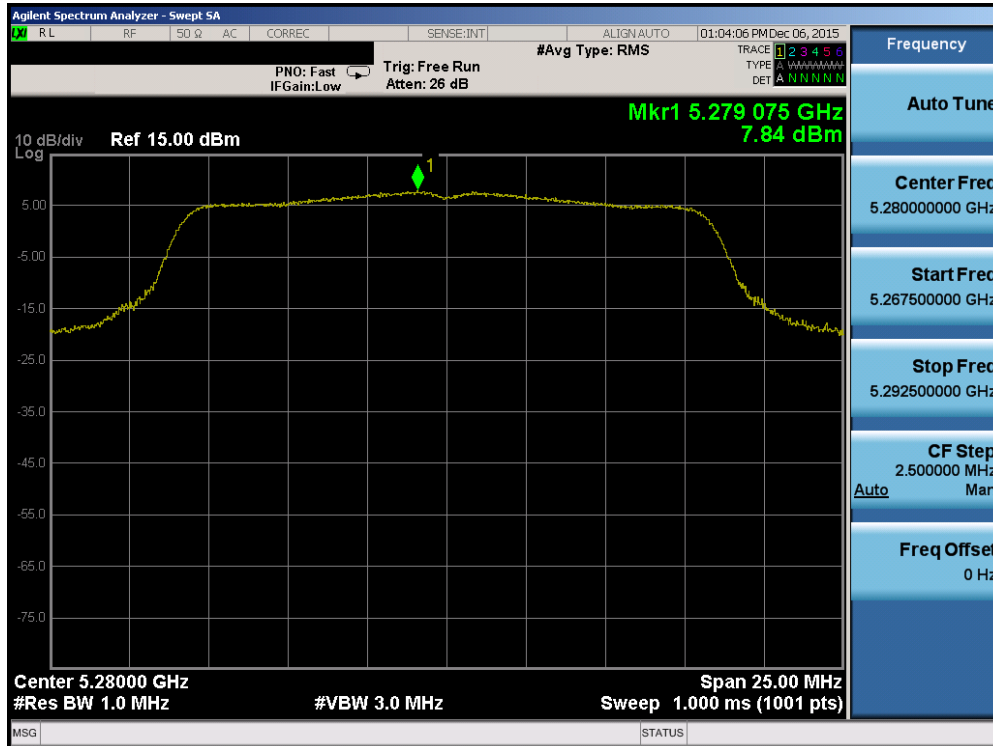


Plot 7-126. Power Spectral Density Plot (80MHz BW 802.11ac (UNII Band 1) – Ch. 42)

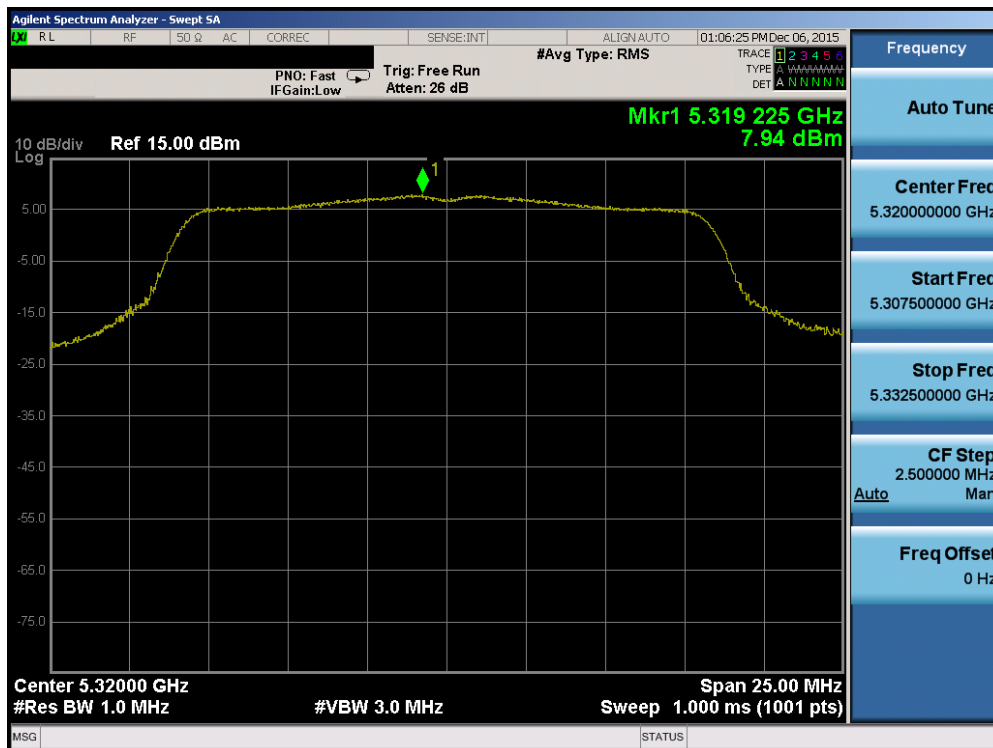


Plot 7-127. Power Spectral Density Plot (802.11a (UNII Band 2A) – Ch. 52)

FCC ID: A3LSMG9350	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 92 of 258

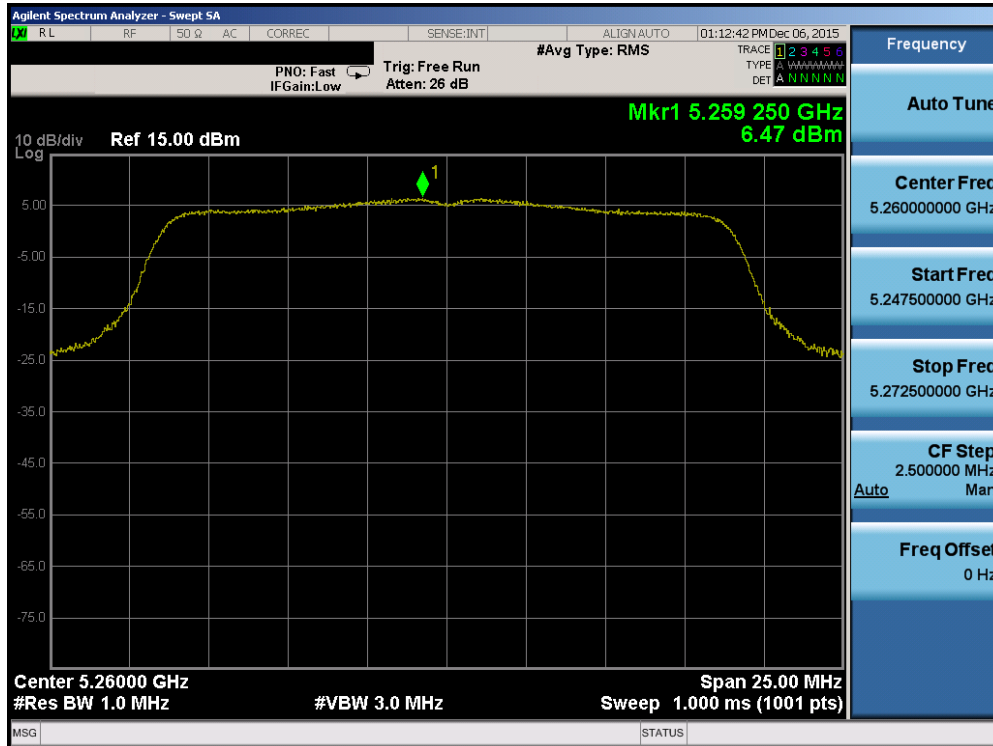


Plot 7-128. Power Spectral Density Plot (802.11a (UNII Band 2A) – Ch. 56)

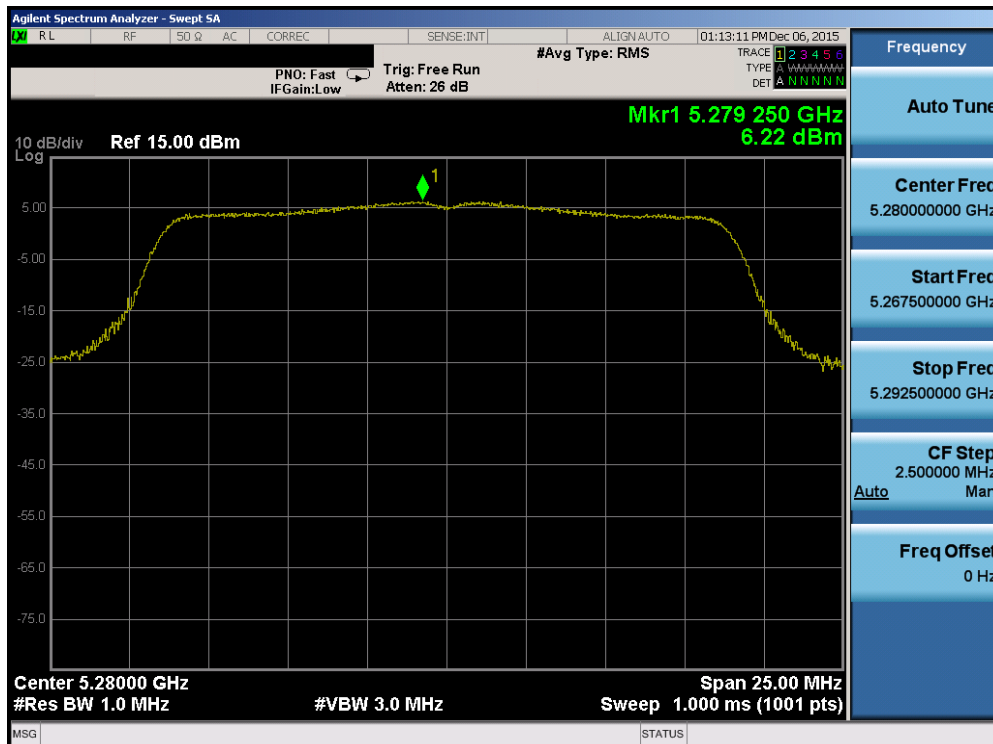


Plot 7-129. Power Spectral Density Plot (802.11a (UNII Band 2A) – Ch. 64)

FCC ID: A3LSMG9350	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 93 of 258

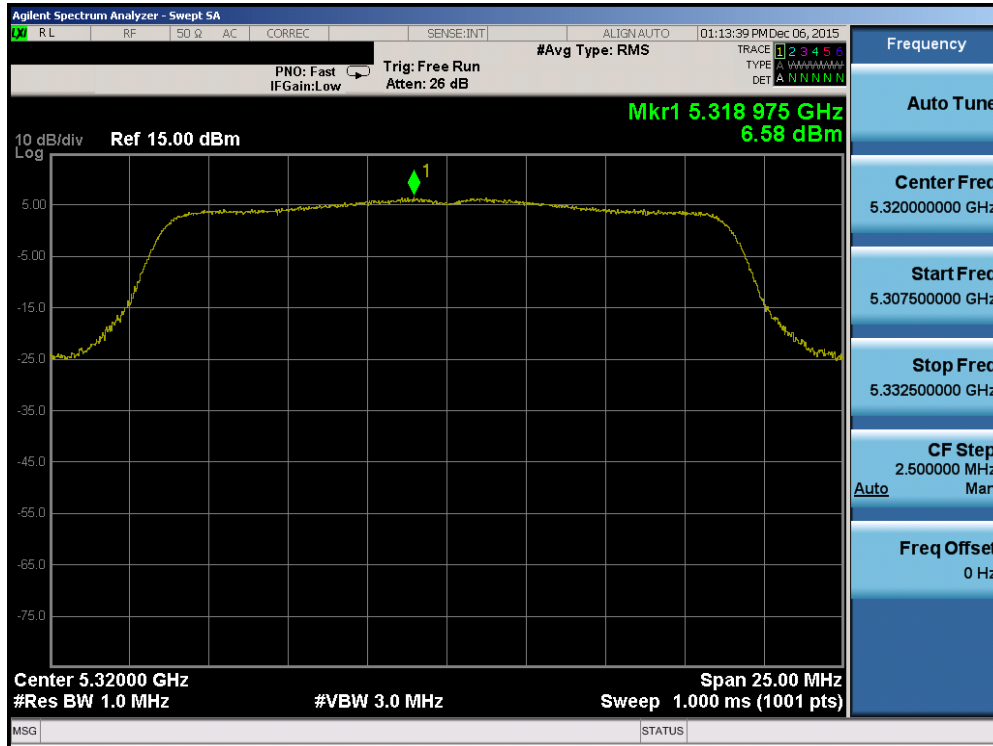


Plot 7-130. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 2A) – Ch. 52)

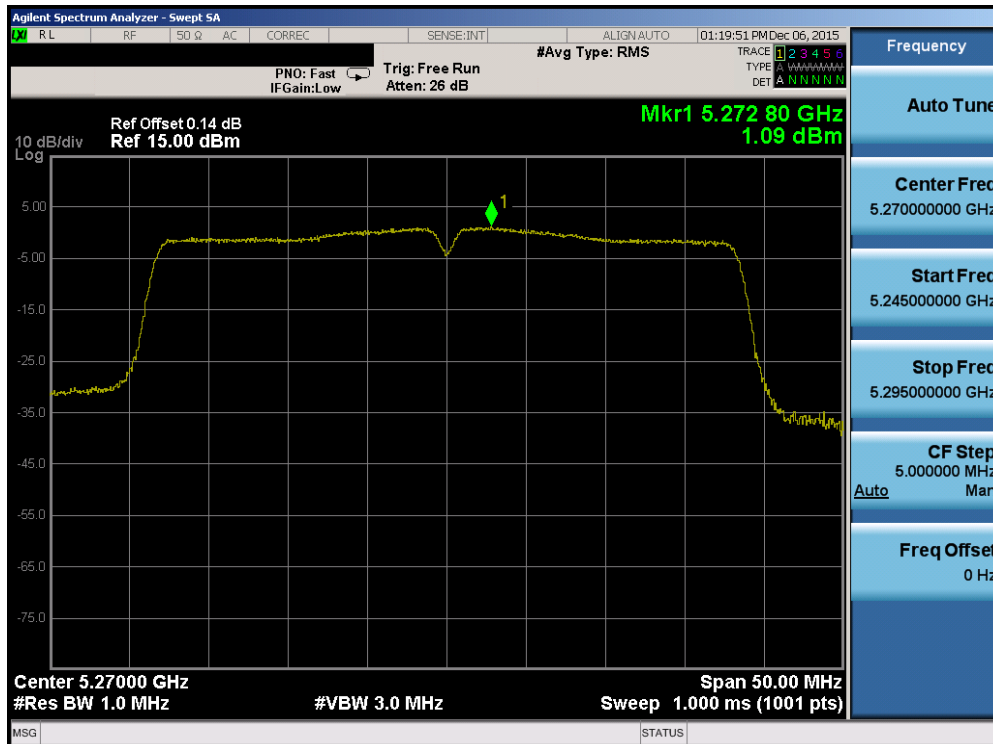


Plot 7-131. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 2A) – Ch. 56)

FCC ID: A3LSMG9350	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 94 of 258

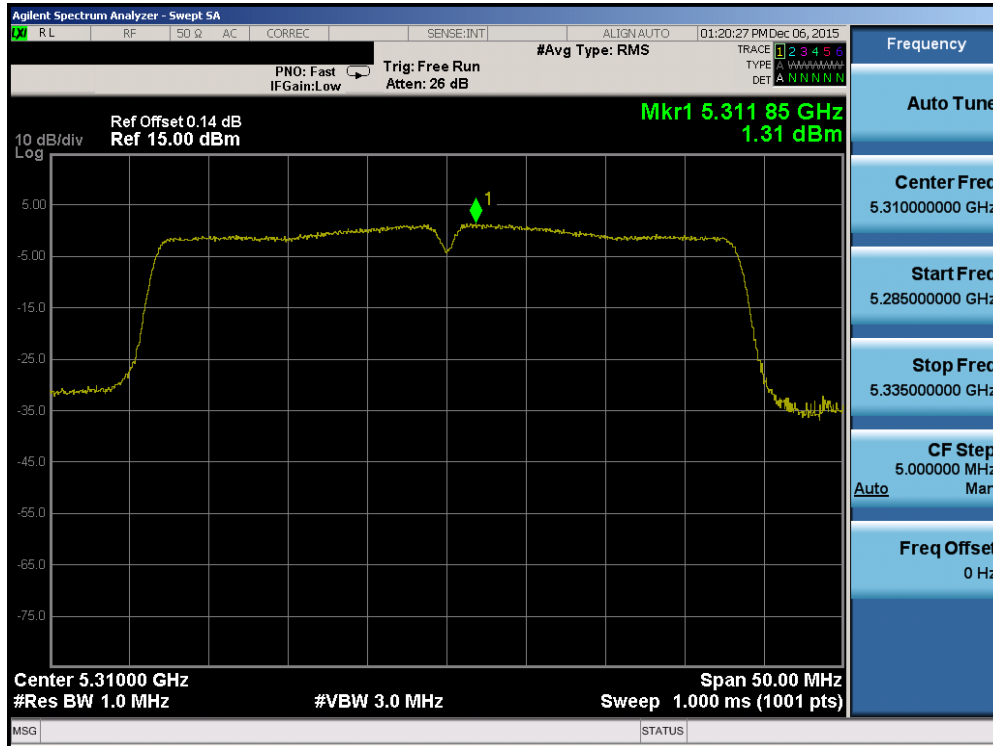


Plot 7-132. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 2A) – Ch. 64)

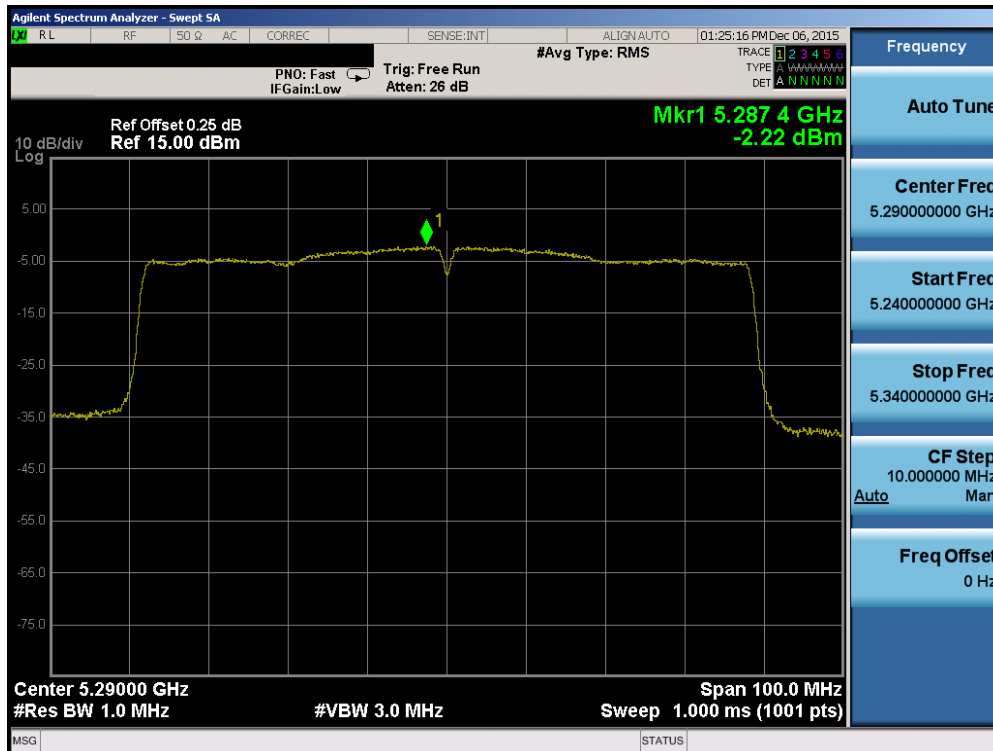


Plot 7-133. Power Spectral Density Plot (40MHz BW 802.11n (UNII Band 2A) – Ch. 54)

FCC ID: A3LSMG9350	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 95 of 258

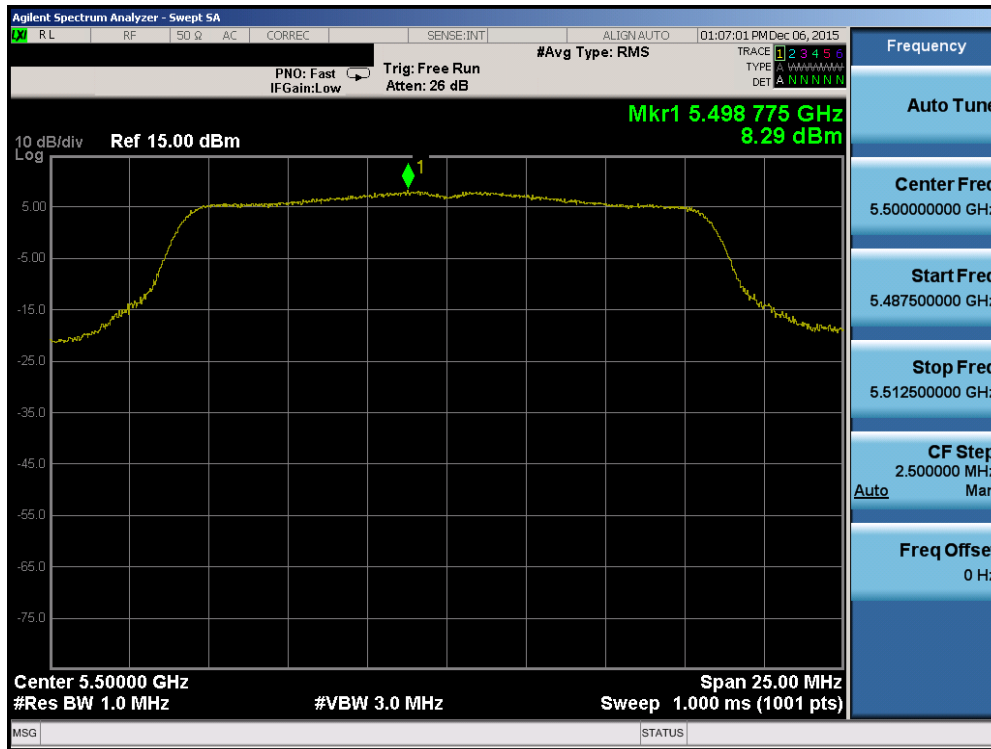


Plot 7-134. Power Spectral Density Plot (40MHz BW 802.11n (UNII Band 2A) – Ch. 62)

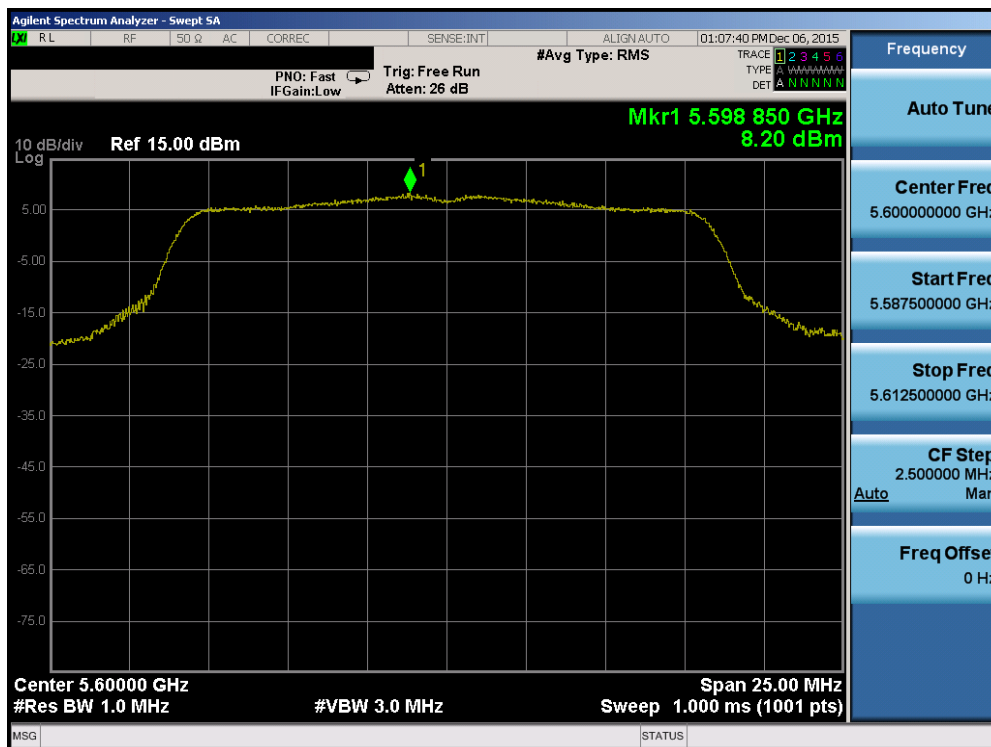


Plot 7-135. Power Spectral Density Plot (80MHz BW 802.11ac (UNII Band 2A) – Ch. 58)

FCC ID: A3LSMG9350	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 96 of 258

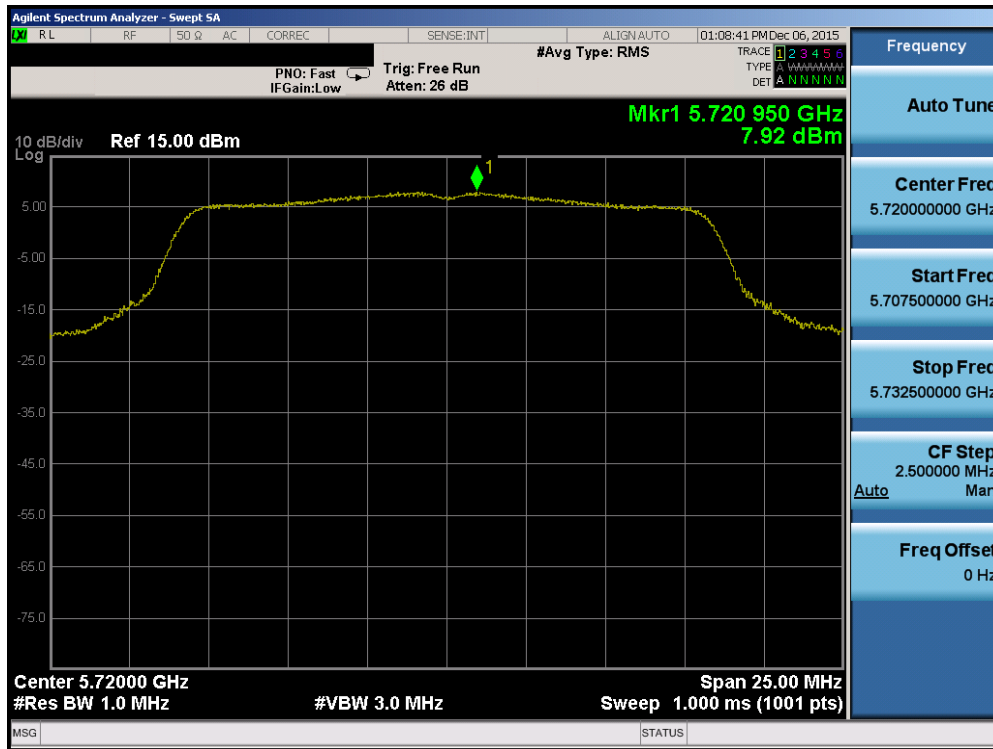


Plot 7-136. Power Spectral Density Plot (802.11a (UNII Band 2C) – Ch. 100)

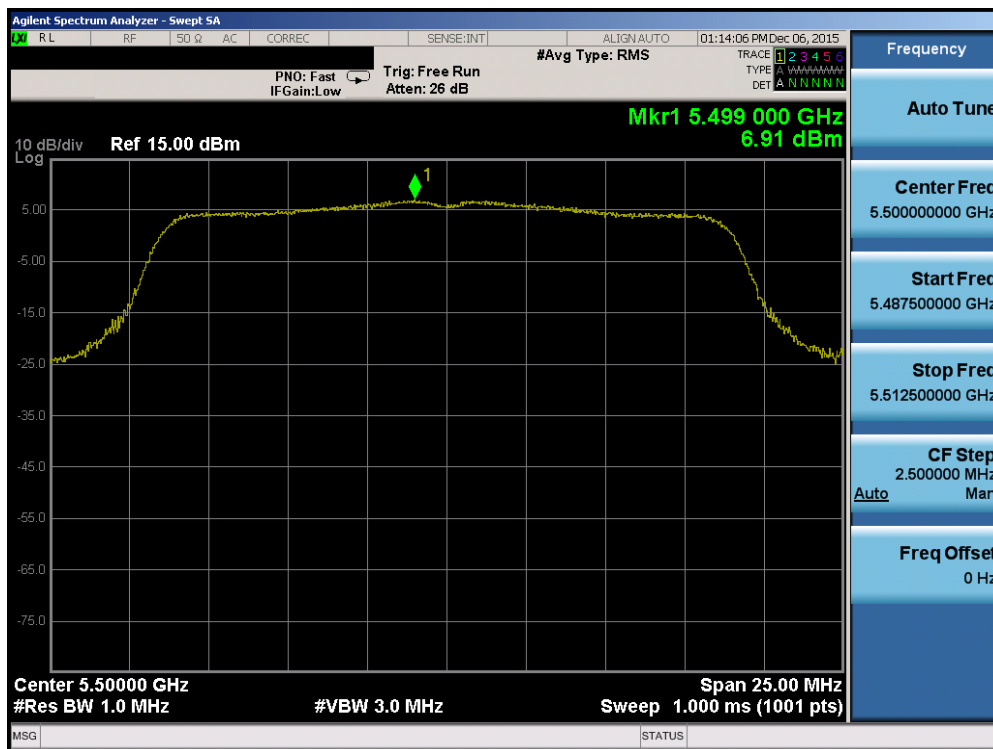


Plot 7-137. Power Spectral Density Plot (802.11a (UNII Band 2C) – Ch. 120)

FCC ID: A3LSMG9350	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 97 of 258

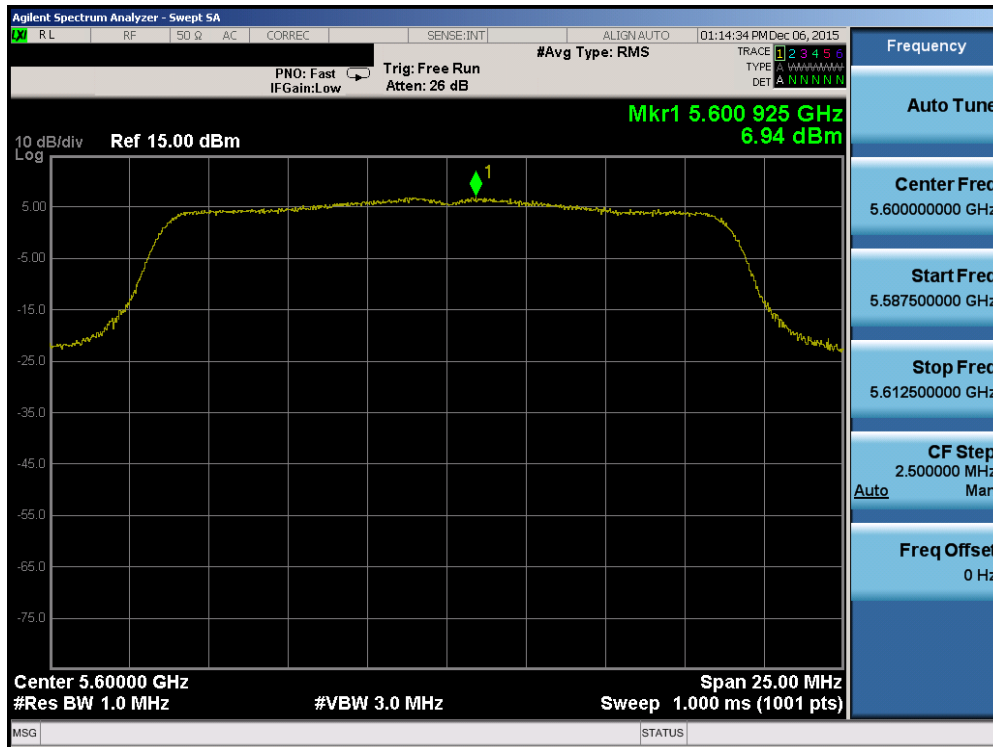


Plot 7-138. Power Spectral Density Plot (802.11a (UNII Band 2C) – Ch. 144)

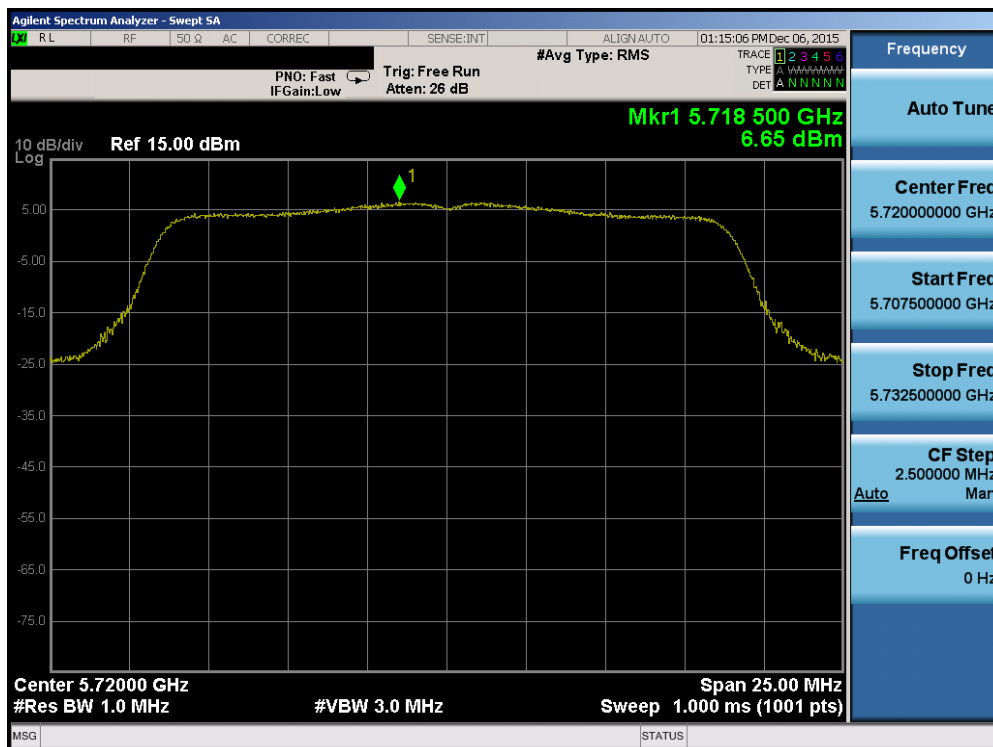


Plot 7-139. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 2C) – Ch. 100)

FCC ID: A3LSMG9350	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 98 of 258

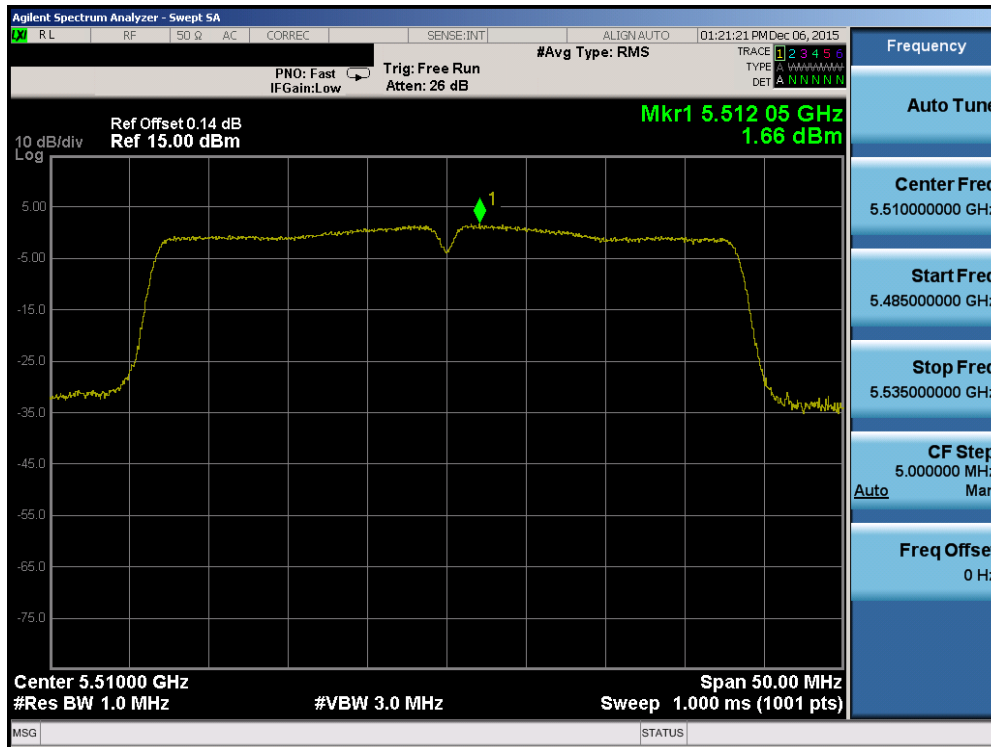


Plot 7-140. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 2C) – Ch. 120)

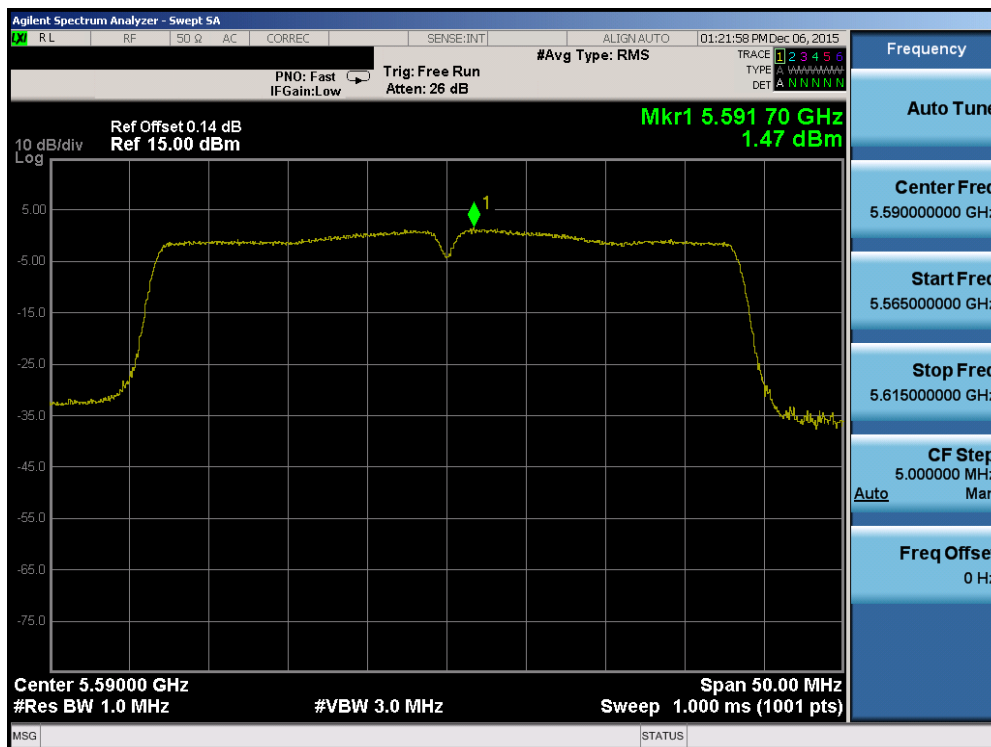


Plot 7-141. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 2C) – Ch. 144)

FCC ID: A3LSMG9350	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 99 of 258

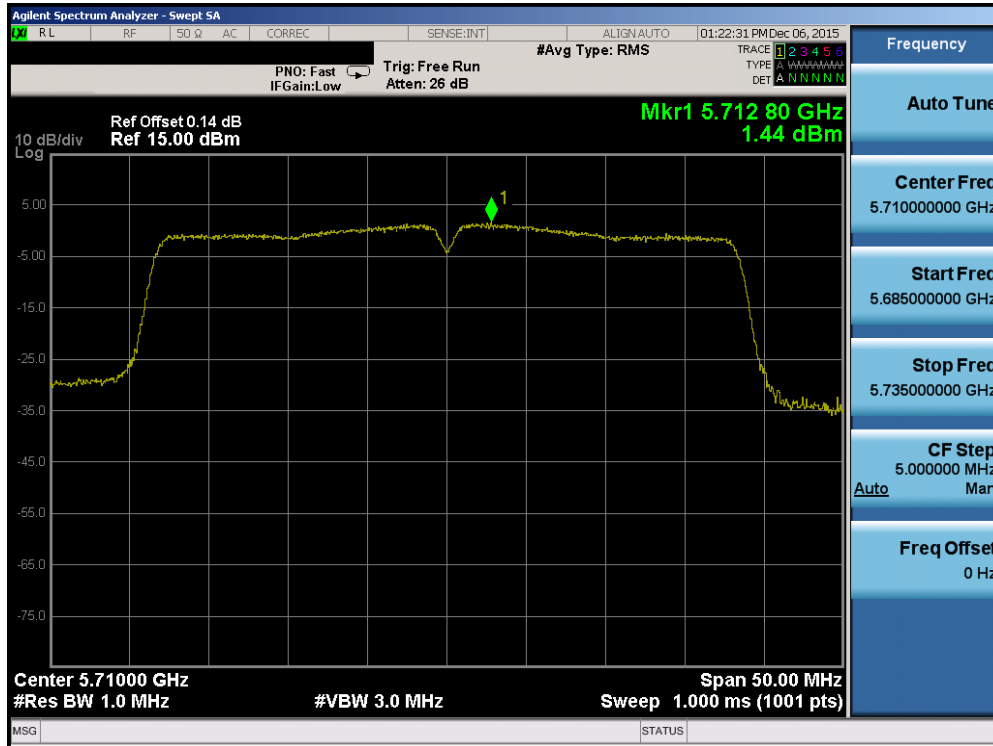


Plot 7-142. Power Spectral Density Plot (40MHz BW 802.11n (UNII Band 2C) – Ch. 102)

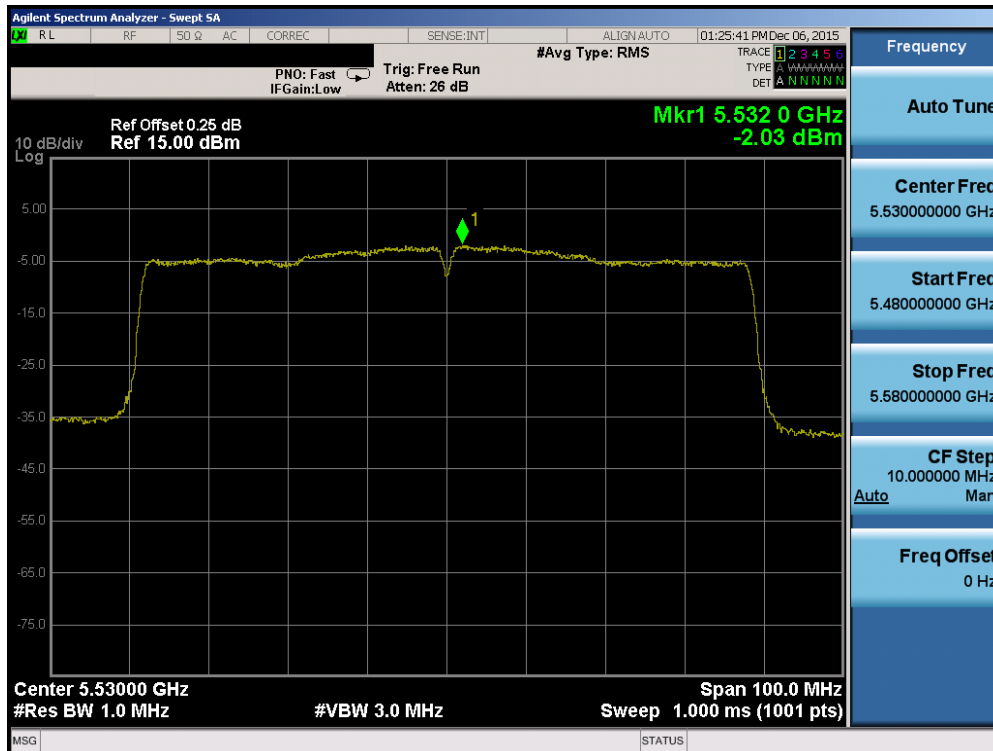


Plot 7-143. Power Spectral Density Plot (40MHz BW 802.11n (UNII Band 2C) – Ch. 118)

FCC ID: A3LSMG9350	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 100 of 258

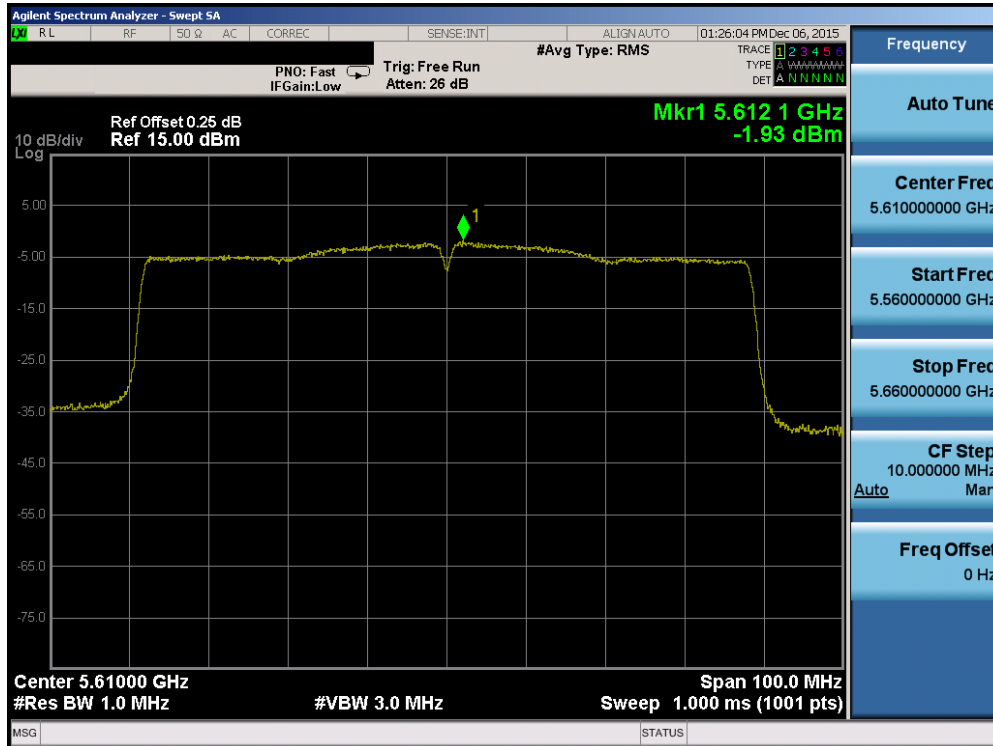


Plot 7-144. Power Spectral Density Plot (40MHz BW 802.11n (UNII Band 2C) – Ch. 142)

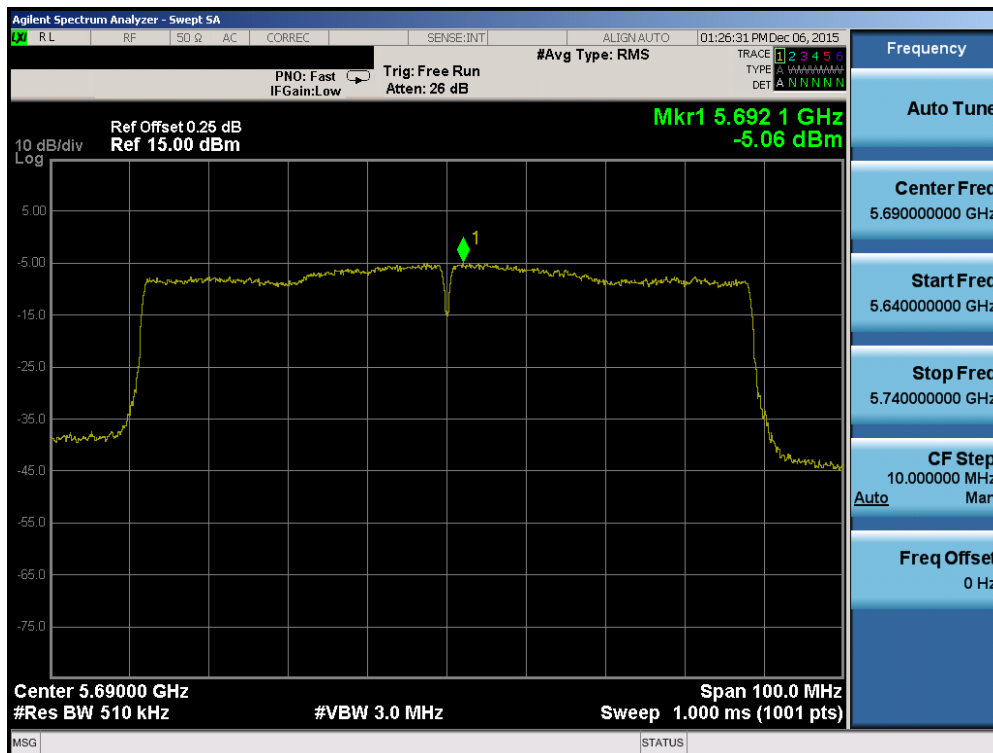


Plot 7-145. Power Spectral Density Plot (80MHz BW 802.11ac (UNII Band 2C) – Ch. 106)

FCC ID: A3LSMG9350	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 101 of 258



Plot 7-146. Power Spectral Density Plot (80MHz BW 802.11ac (UNII Band 2C) – Ch. 122)

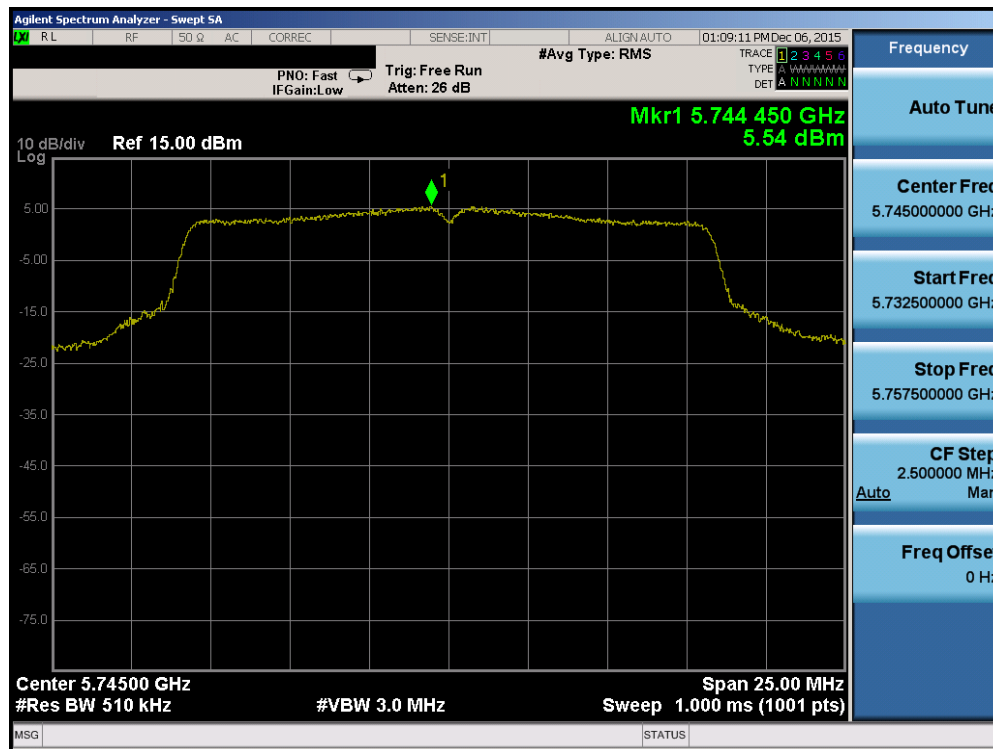


Plot 7-147. Power Spectral Density Plot (80MHz BW 802.11ac (UNII Band 2C) – Ch. 138)

FCC ID: A3LSMG9350	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 102 of 258

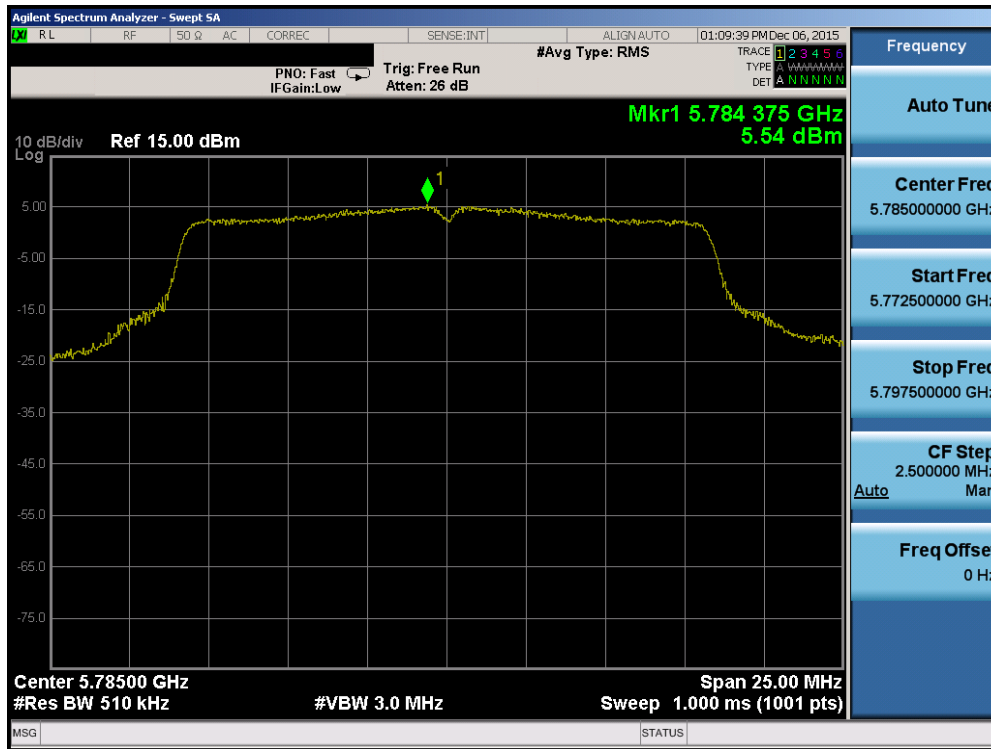
	Frequency [MHz]	Channel No.	802.11 Mode	Data Rate [Mbps]	Measured Power Density [dBm]	Max Permissible Power Density [dBm/500kHz]	Margin [dB]	Pass / Fail
Band 3	5745	149	a	6	5.54	30.0	-24.46	Pass
	5785	157	a	6	5.54	30.0	-24.46	Pass
	5825	165	a	6	5.35	30.0	-24.65	Pass
	5745	149	n (20MHz)	6.5/7.2 (MCS0)	4.29	30.0	-25.71	Pass
	5785	157	n (20MHz)	6.5/7.2 (MCS0)	4.12	30.0	-25.88	Pass
	5825	165	n (20MHz)	6.5/7.2 (MCS0)	4.27	30.0	-25.73	Pass
	5755	151	n (40MHz)	13.5/15 (MCS0)	-0.54	30.0	-30.54	Pass
	5795	159	n (40MHz)	13.5/15 (MCS0)	-0.52	30.0	-30.52	Pass
	5775	155	ac (80MHz)	29.3/32.5 (MCS0)	-2.12	30.0	-32.12	Pass

Table 7-20. Band 3 Conducted Power Spectral Density Measurements

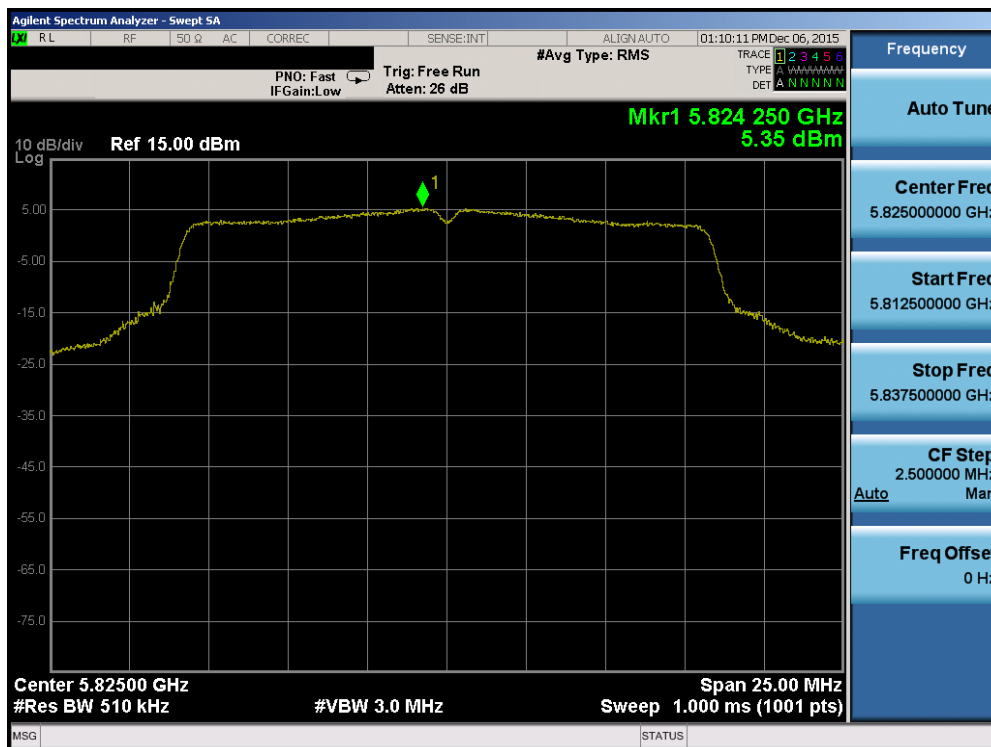


Plot 7-148. Power Spectral Density Plot (802.11a (UNII Band 3) – Ch. 149)

FCC ID: A3LSMG9350	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 103 of 258

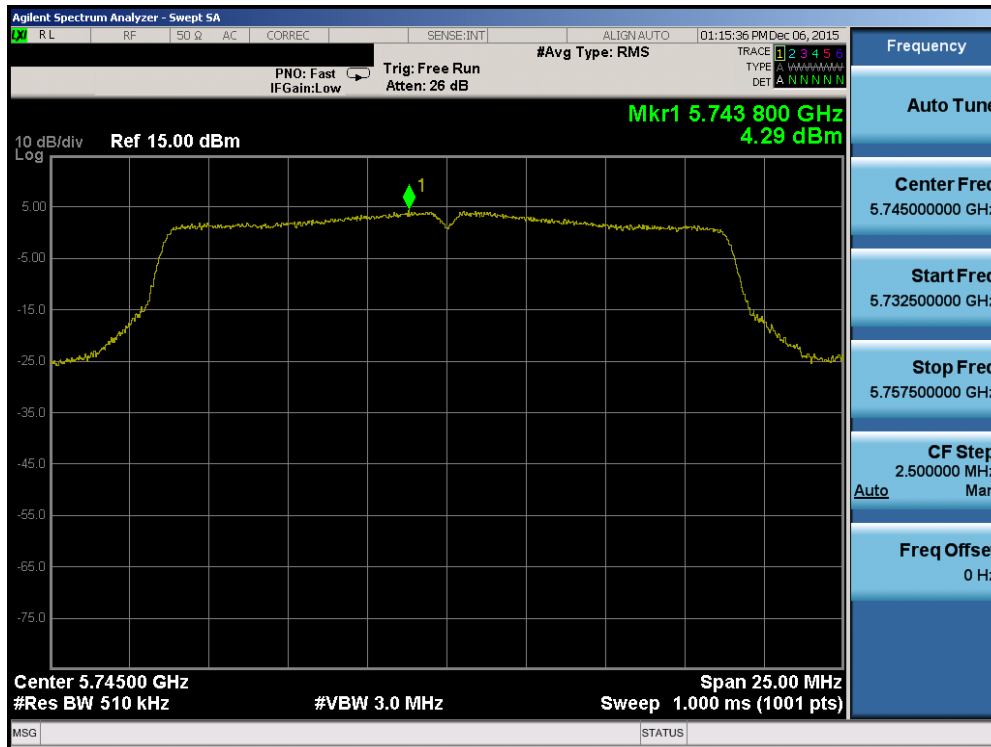


Plot 7-149. Power Spectral Density Plot (802.11a (UNII Band 3) – Ch. 157)

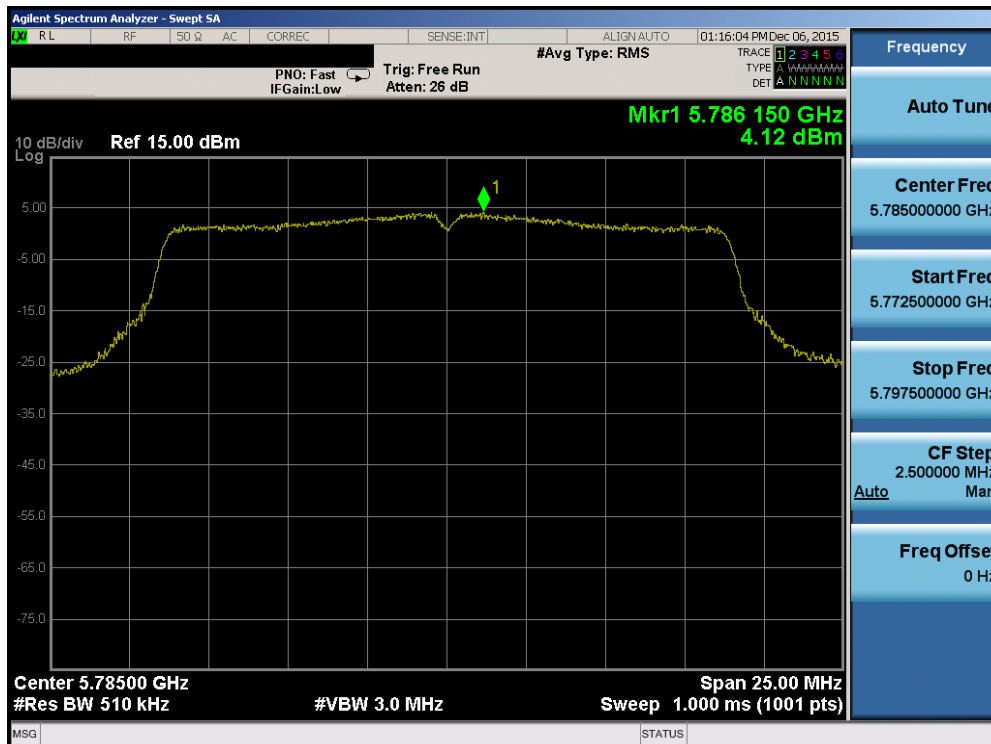


Plot 7-150. Power Spectral Density Plot (802.11a (UNII Band 3) – Ch. 165)

FCC ID: A3LSMG9350	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 104 of 258

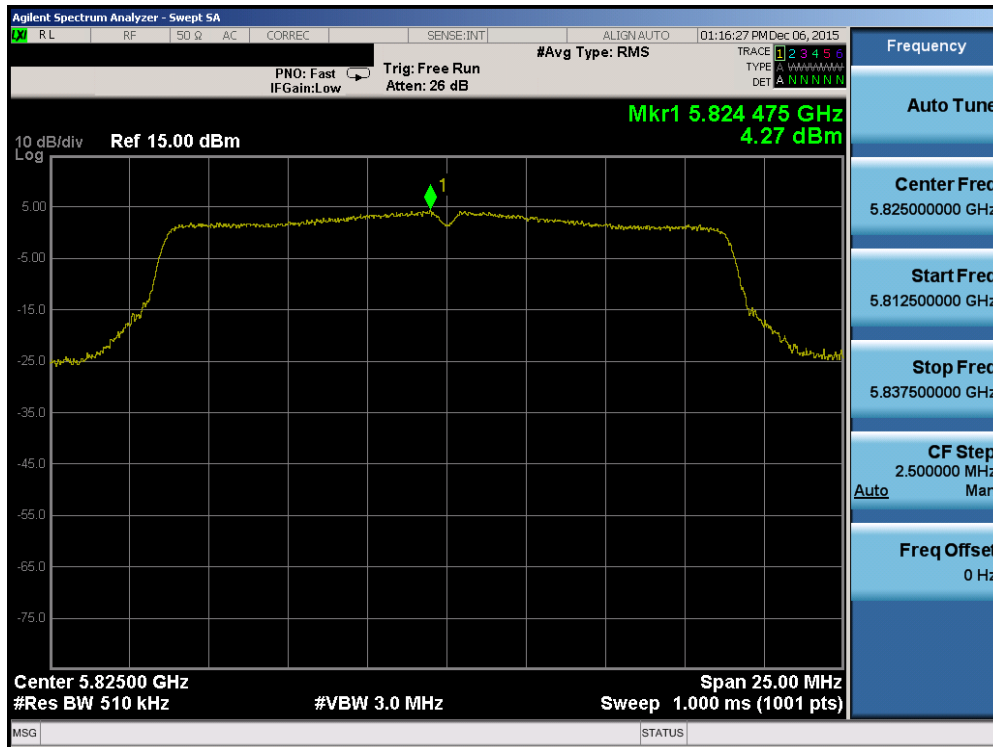


Plot 7-151. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 3) – Ch. 149)

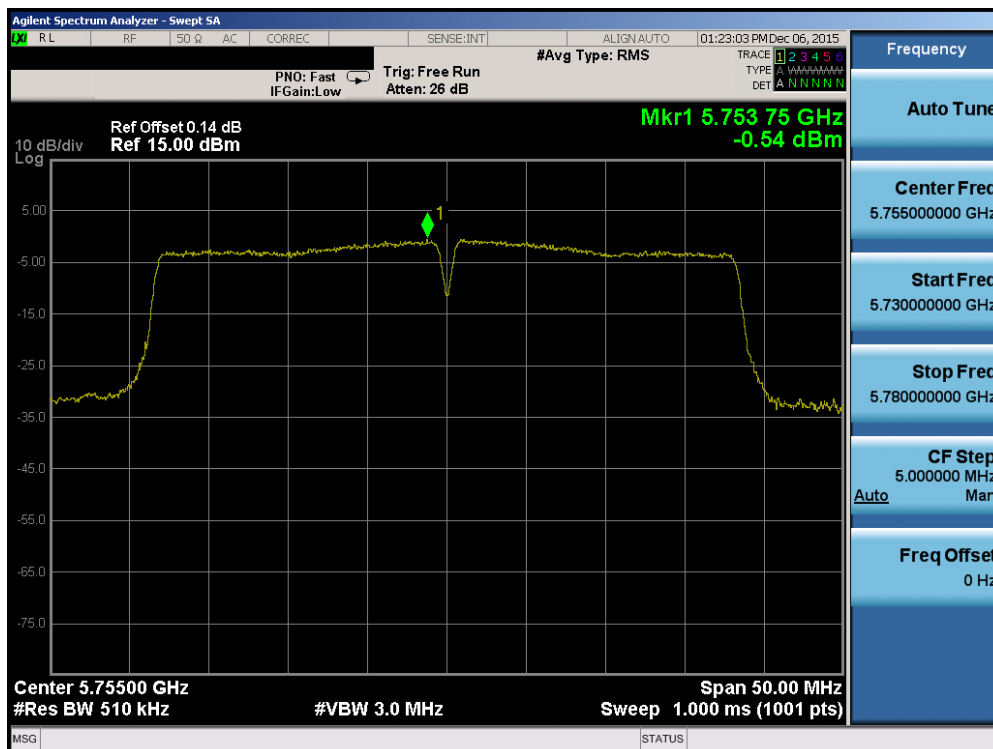


Plot 7-152. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 3) – Ch. 157)

FCC ID: A3LSMG9350	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 105 of 258

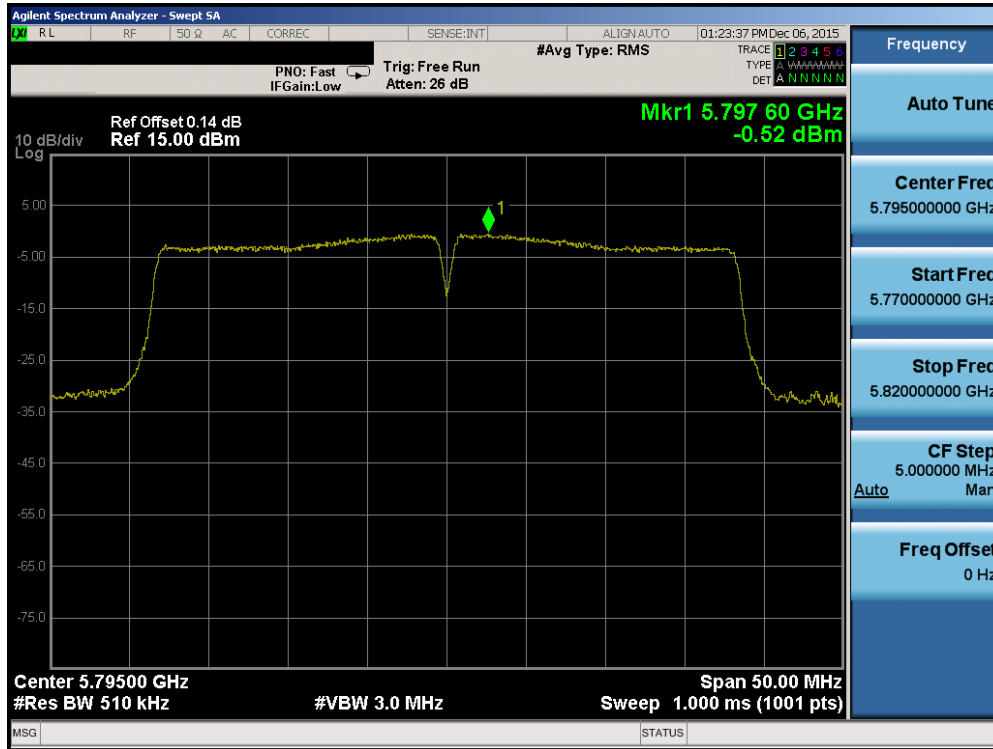


Plot 7-153. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 3) – Ch. 165)

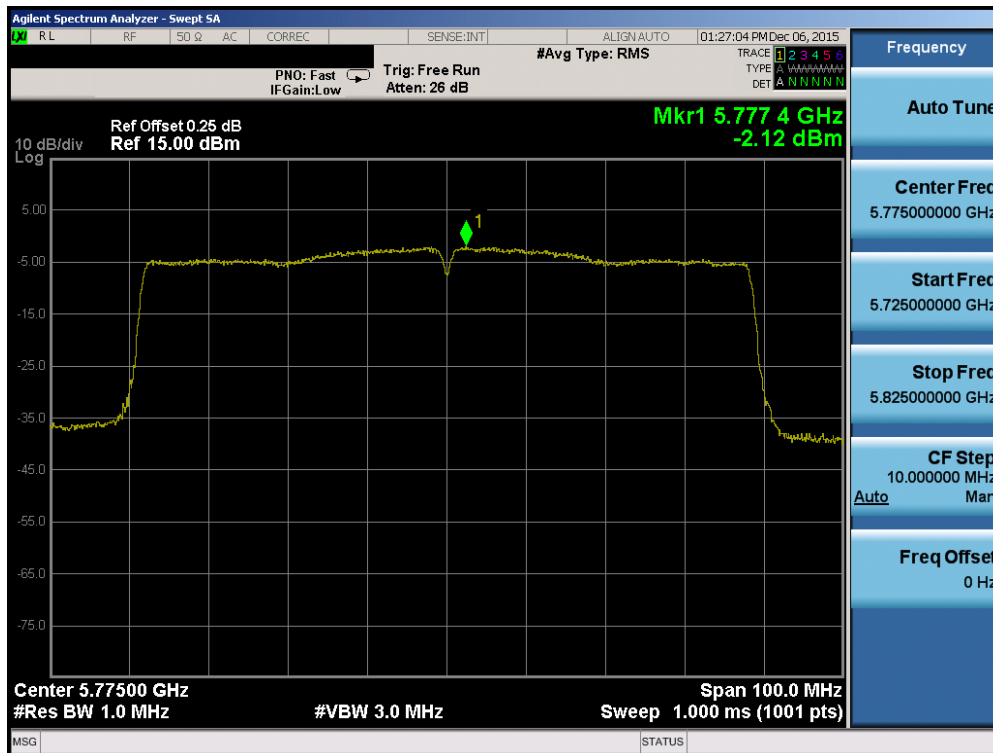


Plot 7-154. Power Spectral Density Plot (40MHz BW 802.11n (UNII Band 3) – Ch. 151)

FCC ID: A3LSMG9350	 FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION) 		Reviewed by: Quality Manager
Test Report S/N: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset	Page 106 of 258



Plot 7-155. Power Spectral Density Plot (40MHz BW 802.11n (UNII Band 3) – Ch. 159)



Plot 7-156. Power Spectral Density Plot (80MHz BW 802.11ac (UNII Band 3) – Ch. 155)

FCC ID: A3LSMG9350	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 107 of 258

Summed MIMO Power Spectral Density Measurements

	Frequency [MHz]	Channel No.	802.11 Mode	Data Rate [Mbps]	Antenn-1 Power Density [dBm]	Antenn-2 Power Density [dBm]	Summed MIMO Power Density [dBm]	Max Permissible Power Density [dBm/MHz]	Margin [dB]	Pass / Fail
Band 1	5180	36	n (20MHz)	6.5/7.2 (MCS0)	6.05	5.86	8.97	11.0	-2.03	Pass
	5200	40	n (20MHz)	6.5/7.2 (MCS0)	6.06	5.90	8.99	11.0	-2.01	Pass
	5240	48	n (20MHz)	6.5/7.2 (MCS0)	6.09	6.22	9.16	11.0	-1.84	Pass
	5190	38	n (40MHz)	13.5/15 (MCS0)	3.16	1.65	5.48	11.0	-5.52	Pass
	5230	46	n (40MHz)	13.5/15 (MCS0)	3.51	2.04	5.85	11.0	-5.15	Pass
	5210	42	ac (80MHz)	29.3/32.5 (MCS0)	-1.80	-2.50	0.88	11.0	-10.12	Pass
Band 2A	5260	52	n (20MHz)	6.5/7.2 (MCS0)	6.22	6.47	9.36	11.0	-1.64	Pass
	5280	56	n (20MHz)	6.5/7.2 (MCS0)	6.65	6.22	9.45	11.0	-1.55	Pass
	5320	64	n (20MHz)	6.5/7.2 (MCS0)	6.30	6.58	9.45	11.0	-1.55	Pass
	5270	54	n (40MHz)	13.5/15 (MCS0)	3.69	1.09	5.59	11.0	-5.41	Pass
	5310	62	n (40MHz)	13.5/15 (MCS0)	3.60	1.31	5.61	11.0	-5.39	Pass
	5290	58	ac (80MHz)	29.3/32.5 (MCS0)	-1.28	-2.22	1.28	11.0	-9.72	Pass
Band 2C	5500	100	n (20MHz)	6.5/7.2 (MCS0)	7.03	6.91	9.98	11.0	-1.02	Pass
	5600	120	n (20MHz)	6.5/7.2 (MCS0)	6.98	6.94	9.97	11.0	-1.03	Pass
	5720	144	n (20MHz)	6.5/7.2 (MCS0)	6.45	6.65	9.56	11.0	-1.44	Pass
	5510	102	n (40MHz)	13.5/15 (MCS0)	4.14	1.66	6.09	11.0	-4.91	Pass
	5590	118	n (40MHz)	13.5/15 (MCS0)	4.43	1.48	6.21	11.0	-4.79	Pass
	5710	142	n (40MHz)	13.5/15 (MCS0)	3.71	1.44	5.73	11.0	-5.27	Pass
	5530	106	ac (80MHz)	29.3/32.5 (MCS0)	-1.45	-2.03	1.28	11.0	-9.72	Pass
	5610	122	ac (80MHz)	29.3/32.5 (MCS0)	-1.51	-1.93	1.30	11.0	-9.70	Pass
	5690	138	ac (80MHz)	29.3/32.5 (MCS0)	-4.52	-5.06	-1.77	11.0	-12.77	Pass

Table 7-21. Bands 1, 2A, 2C MIMO Conducted Power Spectral Density Measurements

	Frequency [MHz]	Channel No.	802.11 Mode	Data Rate [Mbps]	Antenn-1 Power Density [dBm]	Antenn-2 Power Density [dBm]	Summed MIMO Power Density [dBm]	Max Permissible Power Density [dBm/500kHz]	Margin [dB]	Pass / Fail
Band 3	5745	149	n (20MHz)	6.5/7.2 (MCS0)	4.06	4.29	7.18	30.0	-22.82	Pass
	5785	157	n (20MHz)	6.5/7.2 (MCS0)	3.95	4.12	7.05	30.0	-22.95	Pass
	5825	165	n (20MHz)	6.5/7.2 (MCS0)	3.66	4.27	6.98	30.0	-23.02	Pass
	5755	151	n (40MHz)	13.5/15 (MCS0)	1.18	-0.54	3.41	30.0	-26.59	Pass
	5795	159	n (40MHz)	13.5/15 (MCS0)	1.23	-0.52	3.45	30.0	-26.55	Pass
	5775	155	ac (80MHz)	29.3/32.5 (MCS0)	-1.34	-2.12	1.30	30.0	-28.70	Pass

Table 7-22. Band 3 MIMO Conducted Power Spectral Density Measurements

Note:

Per KDB 662911 v02r01 Section E)2), the power spectral density at Antenna 1 and Antenna 2 were first measured separately as shown in the section above. The measured values were then summed in linear power units then converted back to dBm.

Sample MIMO Calculation:

At 5180MHz the average conducted power spectral density was measured to be 6.05 dBm for Antenna-1 and 5.86 dBm for Antenna-2.

$$\text{Antenna 1} + \text{Antenna 2} = \text{MIMO}$$

$$(6.05 \text{ dBm} + 5.86 \text{ dBm}) = (4.03\text{mW} + 3.85\text{mW}) = 7.88 \text{ mW} = 8.97 \text{ dBm}$$

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